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Does Strict Employment Protection Discourage Job Creation?

Evidence from Croatia

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Abstract

Employment protection legislation in Croatia is among the most strict in Europe. Firing is difficult and costly, and flexible forms of employment are limited. Is this apparent rigidity reflected—as one would expect based on standard economic theory—in low labor market dynamics? Is job creation low and hiring limited? Is the job security of insiders achieved at the cost of outsiders not being able to enter the labor market? Rutkowski attempts to answer these questions by examining job flows. If the employment protection legislation is binding, then job and worker turnover should be low. He shows that this is indeed the case. Hiring is limited and the average job tenure is very long in Croatia. Job destruction is low, however job creation is still lower. The result is accumulation of unemployment, in large part due to new labor market entrants not being able to find a job.

The high degree of job protection also seems to strengthen the bargaining position of insiders and results in relatively high wages. So, wages in Croatia are higher than among its competitors, even after adjusting for productivity. These high labor costs are likely to contribute to limited job creation in existing firms, but also are likely to discourage the entry of—and thus job creation in—new firms. The author presents evidence that firm growth has been indeed limited in Croatia, contributing to the low employment level.

Rutkowski examines other potential causes of high unemployment in Croatia (the unemployment benefit system, labor taxation, the wage structure, and skill and spatial mismatches). He argues that they do not play a substantial part in accounting for poor labor market outcomes in Croatia. The author concludes that the stringent employment protection legislation is the key labor market institution behind low job creation and high unemployment. Based on this he recommends specific measures aimed at liberalizing the labor market to foster job creation and employment.

This paper—a product of the Human Development Sector Unit, Europe and Central Asia Region—is part of a larger effort in the region to examine labor market performance and its contribution to economic growth and poverty reduction. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Jan Rutkowski, room H7-170, telephone 202-458-4569, fax 202-477-3387, email address jrutkowski@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. August 2003. (63 pages)

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This paper was prepared for the Croatia Country Economic Memorandum, which was led by Helena Tang and Daniel Oks.

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INTRODUCTION

Employment protection legislation in Croatia is among the most strict in Europe. Termination is difficult and costly, and flexible forms of employment are limited. At the same time long-term unemployment is high while employment is declining. This paper tries to determine if these two facts are linked. Does the stringent protection legislation contribute to high unemployment? To answer this question the paper analyzes labor market dynamics in Croatia, particularly job flows. If employment protection regulation is binding, then job turnover is expected to be low. Job destruction will be low because it is costly for the employer to close an unproductive job. Job creation will be low because employers will avoid hiring new workers in order not to incur future dismissal costs. The paper finds that this is indeed the case. Job destruction in Croatia is low by international standards, and job creation is still lower. The result is falling employment and accumulation of unemployment, in large part due to new labor market entrants not being able to find a job.

The paper examines other potential causes of high unemployment in Croatia (the unemployment benefit system, labor taxation, the wage structure, and skill and spatial mismatches). It argues that they do not play a substantial part in accounting for poor labor market outcomes in Croatia. Thus, the paper concludes that the stringent employment protection legislation is the key labor market institution causing high unemployment. Low job creation seems the price to be paid for high job protection.

The paper is organized as follows. The first section presents key labor market outcomes in Croatia. The second section analyses labor market dynamics, focusing on job flows. The third section examines potential factors that explain the stagnant, low turnover nature of the Croatian labor market. The final section concludes and recommends reforms to foster job creation.

I. LABOR MARKET PERFORMANCE IN CROATIA

The labor market does not perform well in Croatia. The unemployment rate hovers around 16 percent (Table 1). The gradual increase in the (registered)

unemployment stock has started in 1996, when inflow into has begun to exceed outflow from unemployment, and has accelerated after 1998 (Figure 1).[1] Majority of the unemployed (55 percent) are jobless for over one year, i.e. are long-term unemployed. High unemployment combined with a low labor force participation rate (about 50 percent) implies low employment-to-population ratio. Only 42 percent of persons of working age (aged 15 or more) are employed in Croatia. This entails a low level of the utilization of labor resources and translates in the lower level of output and, eventually, lower economic welfare.

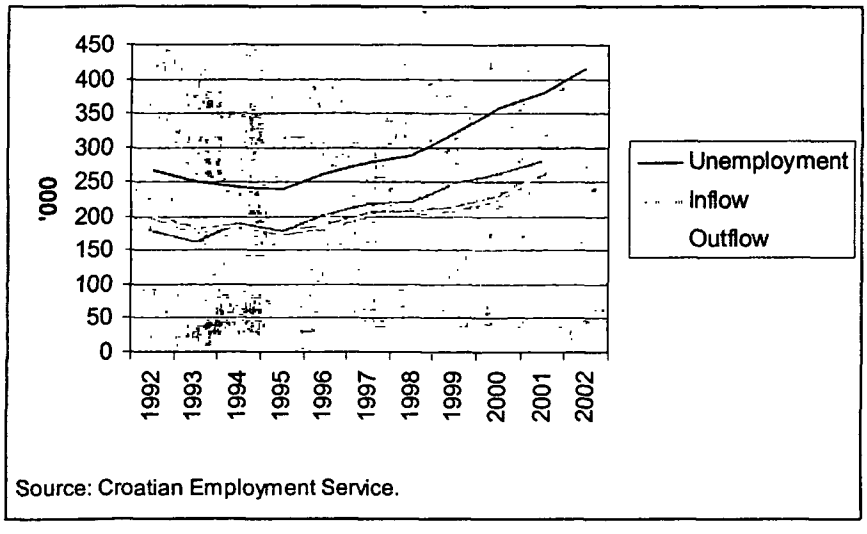
Table 1 Key labor force indicators

	2000.I	2000.II	2001.I	2001.II
		%		
Labor force participation rate	50.4	51.1	49.0	50.3
Employment rate	42.8	42.4	41.5	42.1
Unemployment rate	15.1	17.0	15.3	16.3
Share of LTU	52.1	53.6	56.9	55.3

Notes:
Labor force participation rate = (Employed + Unemployed)/Population aged 15+
Employment rate = Employed/Population aged 15+
Unemployment rate = Unemployment/Labor force

Source: Labour Force in the Republic of Croatia, Second Half-year of 2001, Central Bureau of Statistics.

Figure 1 The evolution of registered unemployment, 1992 - 2002



Source: Croatian Employment Service.

[1] Data used to calculate the unemployment rate (shown in Table 1) come from the Labor Force Survey (LFS), which applies the standard ILO definition of unemployment. Data on the dynamics of unemployment (show in Figure 1) come from the unemployment register and are not comparable with the LFS data. The description of both sources of unemployment data is provided in Box 1.

The low employment-to-population ratio – a key indicator of labor market performance – is a result of three factors that distinguish Croatia from an average OECD country (Table 2). These are:

- Extremely high youth unemployment (over 40 percent) and low labor force participation of young persons (aged 15-24);
- Relatively low labor force participation of prime-age men (aged 25-49);
- Relatively low labor force participation of older persons (aged 50 or more).

The overall low labor force participation reflects poor availability of job opportunities and is associated with the so-called "discouraged worker" effect. This means that workers cease their job search effort because their earlier attempts to find work have proved futile and thus they believe that no jobs are available. High youth unemployment is often indicative of labor market rigidities and barriers to entry (such as high hiring and firing costs). These characteristics of the labor market are quite typical of other transition economies with inflexible labor markets.

Table 2 Labor force indicators in Croatia and in OECD countries by gender and age categories

	All workers				Men			Women		
	15 to 64	15 to 24	25 to 49	50 to 64	15 to 24	25 to 49	50 to 64	15 to 24	25 to 49	50 to 64
					%					
Croatia (2001.II)										
Unemployment rate	16.8	41.9	14.2	8.3	41.8	11.5	8.5	42.0	17.2	8.1
Labor force participation rate	62.2	41.9	82.4	40.9	43.3	88.2	54.0	40.4	77.0	29.2
Employment rate	51.8	24.3	70.7	37.5	25.2	77.9	49.5	23.8	63.8	27.1
	15 to 64	15 to 24	25 to 54	55 to 64	15 to 24	25 to 54	55 to 64	15 to 24	25 to 54	55 to 64
OECD (1999)										
Unemployment rate	6.4	11.8	5.4	5.2	11.7	4.9	5.6	11.9	6.1	4.6
Labor force participation rate	70.4	53.0	80.3	51.6	57.8	93.0	64.5	48.0	67.8	39.4
Employment rate	65.9	46.7	75.9	48.9	51.1	88.5	60.8	42.3	63.6	37.6

Source:
Croatia: Labour Force in the Republic of Croatia, Second half-year of 2001, Central Bureau of Statistics; Author's calculations.
OECD: Employment Outlook, 2000.

The low employment-to-population ratio in Croatia is, inter alia, the result of a mode of labor market adjustment to numerous supply and demand "shocks" associated with the economic transition. As in most other countries of Central and Easter Europe (CEE), the brunt of adjustment has been born by employment rather than wages. Employment has declined while – once the growth of output has resumed -- wages have roughly followed productivity increases. Since 1995 employment has declined by a few percent, while real wages have grown by about one third and productivity (in industry) has increased even more (Table 3).[2]

Table 3 Selected indicators of labor market dynamics, 1995-2001

	1996	1997	1998	1999	2000	2001
			1995 = 100			
Real gross wages	107.9	117.2	124.9	132.1	133.0	131.8
Employment	103.7	96.1	99.1	97.4	94.3	96.3
Labor productivity (industry)	111.3	124.5	135.4	140.7	146.7	160.8
Memorandum:						
LFS unemployment rate, %	10.0	9.9	11.4	13.55 |	16.05	15.8

| indicates the break in time-series

Note: In 2000 the sample frame for the Labor Force Survey (LFS) was changed and accordingly, the results are not fully comparable over time.

Source: Central Bureau of Statistics, the World Bank database, Author's calculations.

The fall in employment coupled with significant productivity gains reflects what can be called a "productivity catch-up". Overmanning was common in socially owned firms in Croatia, which was associated with low labor productivity. As the transition progressed enterprises have been subject to an intensified competitive pressure, coming from the developing private sector as well as from foreign competitors, increasingly entering the Croatian market. This has forced firms to reduce costs, cut employment and improve productivity. For many firms, especially the privatized ones, downsizing has become a prerequisite for a survival in a more competitive environment. To illustrate this process, an average firm size has almost halved during the transition in Croatia, decreasing from over 22 employees in 1993 to about 12 employees in 2000.[3]

[2] Data on employment levels can be inaccurate due to problems with adequate coverage of small private firms by the employment survey.

[3] Data refer to registered firms which are legal persons (FINA/ZAP register).

The resulting labor shedding has led to improved productivity and lower costs, but also – given limited job creation – has contributed to unemployment. Indeed, over 50 percent of the unemployed are persons who lost their job, of which 20 percent in the public sector, and 30 percent in the private sector (Table 4). Nonetheless, it is worth noting that this proportion of job losers in total unemployment is significantly lower than in other intensively restructuring transition economies, (such as Hungary or Poland) and OECD countries, where it varies around 75 percent. This means that new entrants account for a disproportionately large fraction of unemployment, which again points to labor market rigidities, preventing persons without previous job experience to enter the labor market.

Table 4 Job seekers by previous labor market status, 2001

Labor force status before the start of job search	Percent of all job seekers
Employed	**55.9**
Workers in the public sector	19.9
Workers in the private sector	25.9
Self-employed and employers (private sector)	3.9
Unpaid family workers	1.4
Temporary workers for payment in kind	4.9
Out of the labor force	**44.1**
Students	26.1
Housekeepers	7.7
Pensioners	1.0
Military service	8.2
Others	1.1

Source: CBS, LFS second half-year 2001, Author's calculations.

Enterprise restructuring has given rise to accelerated inflows into unemployment, a process which begun in the mid 1990s in Croatia (Table 5). This has been reflected in an increasing proportion of workers who were laid-off among the unemployed and, correspondingly, in a decreasing proportion of workers without previous labor market experience (whose share in unemployment was disproportionately large at an early stage of the transition in Croatia).

At the same time outflows from unemployment, including outflows to jobs, have slowed down, and presently fall short of inflows into unemployment. For example, in 2001 as much as 74 thousand persons newly registered at Employment

Offices, while 70 thousand were deregistered, of which only less than 40 thousand reportedly found jobs (Table 5). Since the excess of inflows into unemployment over outflows from unemployment has persisted over a number of years, the result has been a gradual build up of unemployment. While registered unemployment was 240 thousand in 1995, in early 2002 it already exceeded 410 thousand.

There is a discrepancy between unemployment data coming from the unemployment register and from the Labor Force Survey (see Box 1 for a description of the differences between both sources). This is a common regularity, and Croatia is no exception, however the discrepancy is quite dramatic. Over 40 percent of all persons who are registered at Employment Offices are *not* unemployed according to the ILO definition of unemployment![4] They either have a job (in the informal sector), or are not actively looking for work, or are not available for work.

The genuinely unemployed as a rule register at Employment Offices; only 14 percent of the job seekers do not register, and this group is likely to include mainly persons whose unemployment is short-term or transient. The net effect is thus that the unemployment register data significantly – by almost 50 percent – overestimate the level of unemployment.

[4] Based on the Labor Force Survey data from the second half of 2001.

Box 1
Unemployment: the Labor Force Survey vs. administrative data

In Croatia as in most other countries, there are two main sources of data on unemployment: the Labor Force Survey (which is carried out twice a year by the Croatian Bureau of Statistics) and the unemployment register, maintained by the Croatian Employment Service (CES).

Both data sets have its strengths and weaknesses. The administrative data collected by the CES it provide long time-series of monthly information on persons who registered as unemployed (their socio-demographic characteristics, reasons for unemployment, duration of job search, etc.). Thanks to the fact that administrative data are compiled and published monthly, they allow one to follow changes in unemployment on a regular basis. As such they provide an early signal on changes in labor market conditions. However, the data are affected by various incentives to register, such as eligibility to unemployment benefits, pension and health insurance, and social assistance benefits. As a result, some persons register in order to get access to these benefits, although they are not genuinely unemployed. They either have an informal sector job, are not looking for a job, or are not available for work. At the same time, persons who are genuinely unemployed, often do not register if they are not eligible for benefits associated with registration. The net effect is usually (although not necessarily always) that the unemployment register data overstate the actual magnitude of unemployment. In the case of Croatia this upward bias is quite substantial (see text).

Moreover, changes in benefit regime and thus in incentives to register imply that administrative data on unemployment are often not fully comparable over time. For example, the tightening of unemployment benefit eligibility conditions leads to the drop in registered unemployment, as does more aggressive application of job search/availability tests, despite the fact the underlying labor market conditions have not changed.

In contrast, unemployment data coming from the Labor Force Survey (LFS) provide information on the labor force status which is not affected by administrative regulations and thus more correctly reflect actual labor market conditions. The LFS uses the standard International Labor Office (ILO) definition of unemployment, whereby a persons is unemployed if he/she jointly meets three conditions: (a) does not have a job, (b) is actively looking for a job, and (c) is available for work. Thanks to this the LFS produces internationally comparable data on unemployment. In principle, the LFS also produces unemployment data that is consistent over time, although changes in the sample frame, survey design, etc. may lead to a limited comparability of results over time. For example, the CBS changed the sample frame for the LFS in 2000, which affected comparability of data. The disadvantage of the LFS is that the survey is carried out with a relatively low frequency and sometimes irregularly. In addition, processing of the results is time consuming, meaning that the results are disseminated with a substantial delay (about 3 months in Croatia). This makes the LFS less suitable for regular and "real time" monitoring of labor market conditions. However, given the large number of variables it provides, the LFS is an invaluable source of information for the purposes of labor market research.

In this paper we relay mainly on the LFS and accordingly use the ILO unemployment rate and other labor force indicators. However, to illustrate the trend in unemployment, we use the administrative data on registered unemployment, as in this case a much longer time-series is available (the first wave of the LFS was conducted in Croatia only in November 1996).

Relatively few unemployed receive unemployment benefit. The benefit coverage rate (percentage of unemployed who receive benefit) has been below 20 percent since the mid 1990s, reflecting two factors: (a) a large proportion of new entrants to the labor market, who do not have an insurance record to qualify for unemployment benefit, and (b) a large proportion of long term unemployed, who are no longer eligible for the benefit (with some exceptions, unemployment benefit duration is capped at one year). The benefit replacement rate (i.e. benefit/earnings ratio) is low, as unemployment benefit accounts for only about one-fourth of the average wage. (See Box 2 on the details of the unemployment benefits system in Croatia

Table 5 Registered unemployment, 1992-2002

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002.3
Unemployment ('000)	266.6	250.8	243.3	240.6	261	277.7	287.8	321.9	357.9	380.2	414.4
	Percentage of unemployment stock										
Women	53.0	55.2	53.6	51.6	49.7	49.4	51.9	52.5	52.7	53.5	53.8
No labor market experience	29.8	32.0	34.2	35.1	33.6	32.2	31.4	29.4	28.2	27.4	..
Recipients of UB	22.1	10.1	12.5	15.0	20.3	19.9	15.6	16.9	17.7	18.5	..
Inflow (newly registered)	66.9	64.1	77.2	73.6	77.9	78.9	76.9	77.4	73.2	73.9	5.2
Outflow	75.3	71.3	76.6	73.0	70.2	72.5	71.5	65.2	62.9	69.5	5.0
to jobs	30.0	29.1	35.2	31.5	35.7	36.7	38.0	32.8	33.0	38.8	3.2
removed from register	45.3	42.1	41.4	41.4	34.5	35.8	33.6	32.4	29.9	30.8	1.8
Unemployment-to-Vacancies ratio	2.0	1.8	1.6	1.9	2.1	2.2	2.2	2.4	2.4	1.9	..

Source: Monthly Statistics Bulletin 3/2002, Croatian Employment Service, Author's calculations.

All these factors – the low replacement rate, relatively short duration of the benefit, and limited coverage – imply that labor supply disincentives are modest and thus the unemployment benefit system is unlikely to have much influence on the level of unemployment in Croatia. Most importantly, low benefit coverage implies that the role of existing labor supply disincentives is limited as few people are affected by them.

Box 2
Unemployment Benefit System in Croatia

Eligibility condition: work record of at least 9 months in the last 24 month.

Benefit replacement rate: 100 percent of average salary (net of social security contributions) in the last three month preceding unemployment, subject to the minimum of 20 percent of the national average salary, and the maximum determined by the Minister of Labor and approved by the Minister of Finance. Currently the maximum amount of unemployment benefit is Kn 900 (compared to average wage of around Kn 3600). This means that in practice unemployment benefit in Croatia is a *flat rate* benefit, as the fixed amount of the benefit is much below the national average wage.

Benefit duration: The duration of unemployment benefit payment is related to the length of service, with the minimum of 78 days and the maximum of 312 days. However, workers with long years of service (35 for men and 30 for women) are entitled to an open-ended unemployment benefit, i.e. until they find a new job or acquire retirement rights.

The specific schedule is as follows:

Duration of unemployment benefit (days)	Length of service (years)
78	9 months- 2 years
104	2-3
130	3-4
156	4-5
182	5-6
208	6-7
234	7-8
260	8-9
286	9-10
312	more than 10 years
unlimited	Men: more than 35 years Women: more than 30 years

Source: Law on Employment Mediation and Entitlements during Unemployment, 2002.

Surprisingly, the unemployment-to-vacancies (U/V) ratio has somewhat improved over the recent period, and is quite favorable at 1.9 (meaning that there are less than two unemployed per one vacancy). The relatively large number of vacancies suggests a structural component of unemployment in Croatia. For example, unfilled job vacancies are likely to indicate that the unemployed have different skills than those required in vacant jobs. However, better data and further research are necessary to find out to what extent unemployment in Croatia has structural character.

To conclude, labor market outcomes in Croatia have been and still are unsatisfactory. Employment has declined and unemployment has increased during the transition. This has led to the fall in labor force participation and, consequently, to the low employment-to-population ratio. Relatively few persons of working age in Croatia have jobs. This low utilization of labor resources implies high social cost and a loss in social welfare. An increase in labor force utilization is critical for Croatia's economic growth and increase in the standards of living.

Seemingly, the reason behind declining employment and rising unemployment is enterprise restructuring associated with labor shedding and resulting productivity growth. However, further analysis will prove that this is only a part – not the most important one – of the story. At a deeper level the main reason for unfavorable labor market outcomes is insufficient job creation. In fact, the job creation rate in Croatia is among the lowest among transition economies of CEE. Experience shows that enterprise restructuring and rising productivity do not have to entail job losses as long as the economy is able to generates a sufficient number of new jobs. In an efficient economy with a flexible labor market job creation goes hand in hand with job destruction, with new expanding firms absorbing labor released in the old and declining firms. Hence, the relevant question is what limits the job creation potential of the Croatian economy? Why the Croatian economy does not generate a sufficient number of jobs to offset the negative impact of enterprise restructuring? This question is addressed in the next two sections.

II. A Stagnant Labor Market: The Challenge of Job Creation

Declining employment and rising unemployment mean that job creation in Croatia falls short of job destruction. The job creation potential of the Croatian economy is insufficient. Why is this the case? Why few jobs are being created and unemployment is growing? There are two *prima facie* reasons. First, there may be barriers to *entry* by new firms, limiting firm growth and density (number of firms relative to population). Second, there may be barriers to *expansion*, encumbering employment growth in existing firms. Behind these, there is a number of specific factors that can inhibit firm entry and expansion, and thereby job creation. They include unfavorable investment climate and poor business environment, labor market rigidities and high labor costs, an inflexible wage structure. In addition, new jobs that are being created are likely to differ in salient characteristics from old jobs that are being destroyed. This may make the transition from old to new jobs costly and may contribute to structural unemployment through skill and spatial mismatches.

This section looks at the issues of firm entry and expansion, and analyzes in more detail job creation and job destruction in Croatia. The next section examines various factors behind the poor job creation record of the Croatian economy.

Firm formation

The growth in the number of new firms is critical for job creation. Business start-ups create about one-third of new jobs in the economy, a regularity observed in a number of transition economies, such as Bulgaria, Lithuania and Poland (Rutkowski 2001b, 2002a, 2002b). At the same time, firm density in transition economies tends to be less than in mature market economies (Boeri and Martins, 2000). Thus a major challenge of the transition is to encourage firm entry in order to increase firm density and thus the number of available jobs. This involves an important structural change: the transition from a relatively small number of large (publicly owned) firms toward a much larger number of smaller, private firms.

This process of growing number of small private firms is already under way in Croatia. However, it is accompanied by the closures of inefficient firms, especially after 1997. As a result, the growth in the overall number of firms has been wobbling. The number of firms is presently by about two-thirds higher than it was in 1993

(Table 6).[5] However, the number of firms in 2000 was below that in 1995. All in all, the rate of new enterprise growth was insufficient to offset the employment reductions taking place in existing firms.

Table 6 Firm growth by firm size, 1993-2000
Index of growth, 1993=100

	1994	1995	1996	1997	1998	1999	2000	Avg. annual rate of growth
Number of firms ('000)	139.7	168.3	174.5	182.0	174.3	168.5	165.1	7.4
Employment (1993=100)								
All firms	97.5	92.4	92.3	93.0	92.2	89.7	92.9	-1.0
251+	93.3	85.3	81.5	79.7	76.4	72.9	72.0	-4.6
51 – 250	89.5	80.7	81.7	83.0	82.7	76.2	75.9	-3.9
-50	119.5	127.9	136.6	143.5	148.9	155.0	174.4	8.3
State owned	61.0	48.1	45.7	46.0	46.6	37.9	39.6	-12.4
Mixed	114.2	110.1	104.1	96.2	84.7	84.8	78.3	-3.4
Private	145.3	155.2	166.7	178.2	187.5	192.8	210.4	11.2

Note: Data refer to registered legal persons.

Source: FINA, Author's calculations.

[5] Data refer to enterprises which are registered as legal persons. Since a substantial proportion of all enterprises are natural persons, the data presented may not be representative of all enterprises. Moreover, there is likely to be a discrepancy between the number of registered enterprises and the number of actually active enterprises, the latter often being substantially smaller (EUROSTAT, 2000).

In some other transition economies the process of new firms formation has been much more dynamic than in Croatia. For example in Poland the number of firms increased by some 80 percent over the period 1995-2000, implying an average annual rate of growth of almost 13 percent, which is much higher than in Croatia.[6] The example of Poland shows that fast firm growth does not protect from high unemployment. However, the unemployment problem would have been far more serious if the firm growth had been slower.

A likely reason for the insufficient pace of new firm formation is high costs of entry in Croatia, one of the highest among transition economies of CEE. For example Djankov et al. (2000) report that the number of procedures for entry is 14 in Croatia (7 in Latvia, 9 in Slovenia), time for entry is 58 days (26 days in Poland, 35 in Slovenia), and monetary cost is 34 percent of GDP per capita (7% in Slovenia, 17% in Bulgaria). These high costs are bound to significantly slow down the rate of new enterprise growth, with a detrimental effect on employment. Consequently, lowering the costs of firm entry is a condition for faster job creation.

As expected, the structure of employment by firm size has changed. Employment in large firms fell by almost 5 percent during 1993-2000. It also fell in medium-sized firms, although less precipitously (by about 4 percent). At the same time, employment in small firms increased by over 8 percent. Looking from a different angle, employment is state owned firm decreased by over 12 percent while in private firms increased by 11 percent. Thus the old sector, consisting of large state owned enterprises has been shrinking whereas the new sector, consisting of small private firms is expanding. However, these changes, although significant, have been rather modest in comparison with leading reformers (such as the Czech Republic, Hungary, or Lithuania).[7]

Although small enterprises' share of employment has risen in Croatia, it is still relatively low. Small enterprises (employing fewer than 50 workers), which are a

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[6] It should be borne in mind that cross-country comparability of data on the number of firms is limited. For example in some countries (Poland is an example) there have been incentives to switch from dependent employment to self-employment, which has inflated the number of firms.

[7] Recent comparable data on employment by private/public sector or firm size are not available. However, using the private sector share in GDP as a proxy, one sees that private firms play a lesser role in Croatia than in more advanced transition economies. For example, in 1999 the private sector share in GDP in Croatia was somewhat above 60 percent, while it was around 80 percent in the Czech Republic or Hungary or Estonia or Lithuania (World Bank, 2002).

proxy for the "new sector" account for about 46 percent of total employment (Table 7). This means that the new sector is still underdeveloped in Croatia, with important implications for economic and employment growth. As noted in World Bank (2002), "[...] there appears to be a threshold – of around 40 percent for the shares of small enterprises in employment and value added – below which economies do not take off in terms of growth." (p. 40). Croatia has barely passed this threshold, and is lagging behind leading reformers where the share of employment in small enterprises is over 50 percent. This means that the new sector – comprised of small private firms -- needs to grow further and faster in order to enhance the job creation potential of the Croatian economy. As it will be shown later, it is small private firms who are the engine of job creation in Croatia, similarly as in other transition and market economies.

Table 7 Employment by firm size, 2001

Firm size (number of employees)	Share in total employment, %
1 – 9	23.4
10-19	9.4
20-49	12.8
50-99	10.5
100-199	11.0
200-499	12.4
500+ [a)]	20.4

a) Including respondents who did not know the size of their firm (2.1%).

Source: Labor Force Survey, 2001.2, CBS; Author's calculations.

To conclude, insufficient growth of the new sector, consisting largely of small private firms, is one cause of the limited job creation potential of the Croatian economy. If the average firm size goes down – as it does in Croatia due to restructuring – then the only way to increase the overall number of jobs is through having more firms.[8] Entry of new firms and the faster rate of new enterprise growth is thus critical for the increase in employment and the reduction in unemployment.

Job creation and job destruction

High job destruction is *not* the source of the employment problem in Croatia. It is low job creation. After all, the rate of job destruction in Croatia is much lower than in other transition economies, and even lower than in mature market economies, such s Germany and France. Despite the very low rate of job destruction employment decreased in Croatia because the rate of job creation is still lower. Thus the key to reduce unemployment is not to protect old jobs, but to foster the creation of new jobs, which entails removing barriers to enterprise expansion (definitions of job creation and destruction are provided in Box 3).

Table 8 documents the stagnant nature of the Croatian labor market. The job creation rate in Croatia is only 3.5 percent, compared with almost 10 percent in Lithuania or 7 percent in Bulgaria. This means that Croatia creates less than half as many jobs (relative to its employment) as more dynamic transition economies. In other words, Croatia needs to at least double its rate of job creation to achieve a degree of restructuring similar to that in other transition, and market economies.

[8] This is by virtue of a simple identity: employment-to-population ratio = average firm size * firm density. If average firms size goes down then firm density must go up proportionately to maintain the given level of employment.

Box 3
Job Turnover and its Components

The gross **job creation** rate (JC) is defined as the sum of all employment gains in expanding firms in a given year, expressed as a proportion of total employment at the beginning of the year.

The gross **job destruction** rate (JD) is defined as a sum of all employment losses in contracting firms in a given year, expressed as a proportion of total employment at the beginning of the year.

The **job turnover** rate (JT) is defined as the sum of the absolute value of the change in employment in each firm, expressed as proportion of total employment. Put differently, job turnover is the sum of the job creation and job destruction rates (i.e. JT = JC + JD).

The difference between JC and JD gives the rate of **employment growth** (EG), or the net job creation rate (i.e. EG = JC - JD).

The **job reallocation** rate (JR), also called "excess" job reallocation, is the job turnover rate beyond that necessary to accommodate the net change in employment. Thus JR is the difference between JT and the absolute value of EG. Alternatively, JR equals to twice the JC or JD, whichever is smaller (i.e. JR = 2* min{JC, JD).

The job reallocation rate is often used as an indicator of enterprise restructuring. Restructuring is assumed to be the more intensive, the more jobs are moved away from contracting firms toward expanding firms. For example, a job reallocation rate of 20% means that 10% (20/2) of all jobs were shifted from contracting firms to expanding firms. Notice that that the degree of job reallocation is determined by the lower of the rates of job creation and job destruction.

The concept of job turnover is often confused with that of labor turnover. The rate of labor turnover is the sum of hires and separations. However, not every hiring means that a job was created, and not every separation means that a job was destroyed. A new job was created only if a hiring was not preceded by a separation. And a job was destroyed only if a separation was not followed by hiring. Thus, labor turnover encompasses job turnover. The concept of labor turnover refers to the movements of persons, that of job turnover is limited to movements of jobs.

Table 8 Job creation and job destruction: Croatia against selected countries (as percent of total employment)

	Croatia	Bulgaria	Lithuania	Poland	France	Germany
	2001	2000	1998-99	1998-99	1984-91	1983-90
Job creation	3.5	6.8	9.7	5.3	6.6	6.5
Job destruction	4.9	10.8	10.7	10.1	6.3	5.6
Employment growth [a)]	-1.4	-4.1	-0.9	-4.8	0.3	0.9
Job turnover	8.4	17.6	20.4	15.4	12.9	12.1
Job reallocation	7.0	13.5	19.4	10.5	12.6	11.2

Note: Continuing establishment only (i.e. business start-ups and closures are not included).
Definitions:

a) The employment growth rate refers to the sample (which is limited to legal persons) and is not necessarily consistent with the overall change in employment.

Sources:
Croatia: Central Bureau of Statistics, Author's calculations.
Bulgaria: Rutkowski (2002b)
Lithuania: Rutkowski (2002a)
Poland: Rutkowski (2001)
OECD countries: OECD (1996)

The low rate of job creation is associated with a low rate of job destruction. Croatian firms yearly close 4.9 percent of all jobs, compared with the job destruction rate of 10-11 percent in the restructuring transition economies and around 6 percent in mature market economies. At the first sight the low job destruction rate may seem a positive phenomenon, preventing larger employment declines. This is not the case however. The reason is that the low rate of job destruction translates into a low rate of job creation. This is because the creation of new jobs necessitates destruction of old jobs (World Bank, 2002).[9] Or alternatively, hiring is bound to be limited if firing is difficult and costly, as employers avoid hiring to minimize the future costs of employment adjustment during the downturn.

Economic costs of low job flows (turnover) can be substantial. Limited job turnover implies that there are limited efficiency gains associated with reallocation of jobs away from less productive toward more productive uses. In other words, low job turnover entails less enterprise restructuring and less associated productivity

[9] This is because resources (including labor) locked in old jobs need to be released to become available for new jobs. This argument assumes that either the pool of unemployed is small (which is not the case in Croatia), or that unemployment is structural, i.e. that the skill required (and/or location of) by new jobs differ from the skills possessed (or location of) by the unemployed.

improvements.[10] Thus eventually low job turnover can translate into lower rate of economic growth.

Indeed, the Croatian economy – unlike other transition economies -- does not seem to undergo a process of intensive enterprise restructuring. In Croatia only 7 percent of all jobs are annually reallocated from contracting firms toward expanding firms. This is again much less than in the restructuring transition economies and less than in mature market economies. For example, in Lithuania the job reallocation rate accounts for over 19 percent and in Bulgaria for close to 14 percent. This clearly points to a stagnant nature of the Croatian labor market.

Low job turnover seems to rule out inter-sectoral shifts as an important factor accounting for unemployment in Croatia. As relatively few jobs are being eliminated and created in Croatia, the problem of the skill or spatial mismatch between the old and new jobs does not have much weight. There are relatively few worker transitions between the old and the new sector. This is in strong contrast to the restructuring transition economies, where frictions associated with movements from old to new jobs, characteristic of structural changes, significantly contribute to unemployment.[11]

To summarize, job destruction is low in Croatia, but so is, and not independently, job creation. In a way, the limited creation of new jobs is a price for the slow destruction of old jobs. Low job turnover implies slow reallocation of resources, including labor, away from less productive uses toward more productive uses. The cost of the delayed restructuring is lower than otherwise possible productivity and long-term output growth.

Job turnover by firm ownership and size

Although the overall job turnover rate is low in Croatia, there are some sectors of the economy which are more dynamic than others. Notably, small and private firms create – as well as destroy – more jobs than larger and state owned firms (Table 9). The job creation rate in the private sector at about 6 percent is nearly three times

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[10] We focus here on the aspect restructuring consisting in reallocation of resources across units improvements (i.e. on allocative efficiency) and associated productivity gains. We leave aside the issue of restructuring within firm consisting in productivity improvements due to technological and organizational changes, which not necessarily entail labor shedding.

[11] This does not rule out that unemployment in Croatia has an important structural component, as the unemployed may lack the skills necessary to successfully compete for available jobs.

as high as in the SOE sector. However, the job destruction rate in the private sector is also much higher than in the public sector (7 and 2 percent, respectively).

Table 9 Job creation and job destruction by sector, 2001 (as percent of total employment)

Sector	Job creation	Job destruction	Job turnover	Employment growth	Job reallocation	Sample share in employment
Ownership						
Public						
Firms	2.2	1.9	4.1	0.2	3.8	27.5
Institutions	3.1	4.5	7.6	-1.4	6.2	25.9
Private	6.2	7.1	13.3	-0.9	12.4	22.1
Mixed	3.0	6.7	9.7	-3.7	5.9	24.5
Size (employment)						
-50	6.9	6.0	13.0	0.9	12.1	13.7
51 – 250	3.8	5.7	9.5	-1.8	7.7	38.0
251+	2.2	4.0	6.2	-1.7	4.5	48.3
Activity						
Agriculture	2.4	6.0	8.4	-3.6	4.8	3.8
Non-agricultural business sector	4.1	6.0	10.1	-1.9	8.2	67.8
Non-business sector	2.2	2.1	4.3	0.1	4.2	28.4
Firm status [a)]						
Business start-ups	1.7	na	na	na	na	na
Continuing firms	8.1	5.2	13.2	18.4	31.7	na
Closures	na	0.5	na	na	na	na

na = not applicable

Notes:

Data refer to establishments defined by economic activity, rather than firms. Continuing firms only.

a) Data on firm status come from a different source than the other data and are not directly comparable.

Source: Central Bureau of Statistics, FINA, Author's calculations.

Equally pronounced are the differences in job turnover between small and large firms. In small firms (up to 50 workers) the job creation rate is almost 7 percent, compared with slightly over 2 percent in large firms (over 250 workers). Small firms close 6 percent of their jobs per year, while large firms 4 percent. This implies that that the *net* job creation (employment growth) is positive in the small firm sector and negative in the large firm sector.

The above data provide an exemplification of the claim that higher job creation goes hand in hand with higher job destruction. In other words, high job creation sectors tend to be high job turnover sectors. Put still differently, old jobs need to be eliminated for new jobs to be created.

Although some sectors are more dynamic than the others in Croatia, it should be emphasized that even the relatively more dynamic sectors are characterized by low job turnover. In particular, job turnover is small private firms in Croatia is substantially less than in more dynamic transition economies. For example, the job reallocation rate in small firms (employing less than 50 workers) in Croatia is 12 percent, while in Bulgaria and Lithuania is about twice as high (24% and 26%, respectively). Similarly, the job reallocation rate in the Croatian private sector is half of that in Bulgaria. This is indeed a dramatic differences, clearly demonstrating that labor market rigidities affect the Croatian economy at large, rather than only the SOE sector.

To conclude, there are visible inter-sectoral differences in job turnover in Croatia. In particular, as one would have expected, small private firms are more dynamic than large SOEs. What is startling however, is that even these more dynamic segments of the economy look rather unimpressive when compared to similar sectors in more dynamic transition economies. This means that institutional barriers to job creation are pervasive, and not limited to particular segments of the economy (e.g. to the SOE sector). While the governance factor can contribute to the slow pace of restructuring in SOEs, it seems that it is mainly institutions and regulations that hinder restructuring in the private sector. Given the private sector's dynamic potential, the best way to foster job creation is thus to remove institutional and regulatory constraints on its development.

Job turnover by industry

Industrial restructuring, which is under way in Croatia, involves the decline of some old industries and a simultaneous expansion of other industries, where Croatia has comparative advantage. At the same time, international evidence shows that restructuring largely occurs *within* industries, that is resources (including labor) are reallocated away from contracting toward expanding firms within an industry. Which industries create jobs and which eliminate them? Which industries are restructuring the fastest in Croatia?

Table 10, Panel A shows ten industries with highest rates of gross job creation. These include wholesale trade, manufacturing of transport equipment, so called other business activities, manufacturing of metal products and car sale.[12] These are the industries which provide best job opportunities for persons looking for work, even though in some cases (e.g. wholesale trade) they not only create but also destroy a large number of jobs. Nonetheless such high job turnover is beneficial for the unemployed as entails more hiring and thus better chances to escape unemployment.

The top 10 industries in job destruction include manufacturing of RTV and communication equipment, manufacturing of basic metals, manufacturing of petrol products, manufacturing of textile and leather products (Table 10, Panel B). These are the industries where the risk of job loss is the largest, although in some cases it may coincide – due to high job turnover – with good hiring prospects.

The relation between gross job creation and gross job destruction determines whether an industry is expanding, i.e. creates jobs on a net basis, or is shrinking, i.e. eliminates jobs on a net basis. The fastest growing industries in Croatia include manufacturing of transport equipment, car sale, other business activities, and manufacturing of metal products (Table 10, Panel C). The industries which are shrinking include manufacturing of RTV and communication equipment, manufacturing of petrol products, manufacturing of textiles, hotels and restaurants, and manufacturing of wood and paper products (Table 10, Panel D). This is an interesting combination, as it contradicts the popular view that the manufacturing sector is shrinking during the transition, and the service sector is expanding. After all, some manufacturing industries (e.g. manufacturing of transport equipment) do expand, while some service

[12] The category "other business activities" includes legal services, accounting, business counseling, marketing, personnel recruitment, etc.

industries contract (e.g. hotels and restaurants). Obviously, these exceptions, however important, do not contravene the overall trend toward a higher share of services in the Croatian economy. This general trend has important labor market implications, as it calls for the change in the skill structure of the Croatian workforce, a gradual move away from manual skills, essential in the manufacturing based economy, toward new skills (such as communication, language, computer skills) essential in the service based economy.

Table 10 Job turnover by industry, 2001

A. Top 10 industries with highest rates of gross job creation

Industry	Job creation rate	Share in employment
	%	
Wholesale trade	10.5	2.8
Transport equipment	9.4	2.2
Other business activities	8.9	2.2
Metal products	7.5	1.4
Car sale & repair	7.3	1.0
Machinery	7.3	1.2
Basic metals	6.4	0.7
Rubber and plastics	5.8	0.7
Construction	5.8	5.5
Leather	5.7	1.2

B. Top 10 industries with highest rates of gross job destruction

Industry	Job destruction rate	Share in employment
	%	
RTV & communication	12.3	0.5
Basic metals	11.0	0.7
Petrol products	9.9	0.7
Textiles	9.5	1.1
Leather	9.5	1.2
Wholesale trade	9.3	2.8
Retail trade	8.8	5.1
Wood	8.8	1.3
Machinery	8.5	1.2
Electric equipment	8.0	1.4

C. Top 10 industries with highest employment growth

Industry	Employment growth rate	Share in employment
	%	
Transport equipment	8.1	2.2
Car sale & repair	3.5	1.0
Other business activities	2.7	2.2
Metal products	1.6	1.4
Public administration	1.3	6.1
Wholesale trade	1.2	2.8
Education	1.2	9.9
Post & telecom	0.8	3.1
Rubber & plastic	0.7	0.7
Petrol extraction	0.4	0.7

D. Top 10 industries with largest employment decline

Industry	Employment growth rate	Share in employment
	%	
RTV & communication	-11.4	0.5
Petrol products	-9.7	0.7
Textiles	-6.4	1.1
Hotels & restaurants	-6.1	3.8
Wood	-5.7	1.3
Paper	-5.6	0.6
Electricity & gas	-4.9	2.4
Financial intermediation	-4.9	2.7
Furniture	-4.7	1.6
Basic metals	-4.6	0.7

E. Top 10 industries with highest rate of job reallocation

Industry	Job reallocation rate	Share in employment
	%	
Wholesale trade	18.7	2.8
Machinery	14.6	1.2
Basic metals	12.8	0.7
Other business activities	12.5	2.2
Metal products	11.8	1.4
Construction	11.5	5.5
Leather	11.4	1.2
Retail trade	11.3	5.1
Rubber & plastic	10.2	0.7
Electric equipment	8.1	1.4

Note: The raking is based on industries whose share in total employment is at least 0.5%.

Source: Central Bureau of Statistics; Author's calculations.

Apart form the change in the industry structure, a less visible but equally important change of the job structure is under way in Croatia. Within industries lower productivity jobs are being destroyed and simultaneously presumable higher productivity jobs, often requiring different, higher skills, are being created. Such dynamic, restructuring industries include wholesale trade, manufacturing of machinery, manufacturing of basic metals, and other business activities (Table 10, Panel E). Again, it is noteworthy, the restructuring sectors include both manufacturing and service industries.

The presumption that job reallocation involves the elimination of less productive jobs and the simultaneous creation of more productive jobs cannot be substantiated directly for Croatia, as necessary information is lacking. However, international evidence provides strong support to the hypothesis that job reallocation tends to bring about substantial productivity gains. For example, Foster et al. (2002) argue that "a substantial fraction of aggregate productivity growth is associated with the reallocation of outputs and inputs from less productive to more productive individual microeconomic units." (p. 2) For example, "in the U.S., roughly thirty percent of productivity growth (measured as either multifactor or labor productivity) over a ten-year horizon is accounted for by more productive entering plants displacing

less productive exiting plans." (p. 2). This connection between reallocation and productivity dynamics holds for both manufacturing and service sectors. The link between job reallocation and productivity growth is also demonstrated in a summary article by Bartelsman and Doms (2000). There is no reasons to assume that the connection between reallocation and productivity observed in other countries does not hold in Croatia. Accordingly, those sectors in which job reallocation is relatively high in Croatia are a likely to be the main contributors to the aggregate productivity growth.

What is the impact of job flows and restructuring on employment growth within industry? This is an empirical question because as we have just seen, high job destruction does not necessarily imply a fall in employment, as high job creation does not necessarily imply a growth in employment. It is only the interactions, joint impact of job creation and destruction that determines changes in industry employment. It turns out that in Croatia employment growth within industry is more strongly negatively correlated with job destruction (r=-0.62), than positively correlated with job creation (r=0.56). This is a rather untypical pattern, as in other countries (e.g. Lithuania, Poland) employment growth is strongly correlated with job creation and only weakly with job destruction. In other words, in Croatia employment changes depend mainly on the pace of job destruction, while in other transition economies they depend mainly on the pace of job creation. The pattern prevailing in Croatia may give rise to an misleading interpretation that forestalling job destruction is the way to prevent employment decline. However, the experience from other restructuring transition economies points in exactly the opposite direction: fostering job creation rather than preventing job destruction is the best means to promote employment growth. The job destruction rate is already very low in Croatia, and thus there hardly is room to lower it still further. Accordingly, the only possible way to reverse the negative employment trend is to increase job creation. [13]

Croatia is also untypical in that there is no correlation between industry employment growth and enterprise restructuring. In contrast, in other transition economies (Lithuania, Poland) there is a positive, albeit not very strong, correlation between the rate of job reallocation and the rate of employment growth, meaning that those industries where enterprise restructuring is more intensive tend to growth faster. One possible explanation is that the magnitude of job reallocation in Croatia – which

[13] Of course, a high job creation rate by itself does not ensure that employment growth is positive, as it can be outbalanced by a high job destruction rate. However, given the job destruction rate, the higher the job creation rate, the faster is employment growth.

is significantly smaller than in the restructuring transition economies -- is not sufficient to spur visible employment changes. If so, this is yet another argument for making the Croatian labor market more fluid.

It is noteworthy, that job creation is correlated with job destruction in Croatia, which means that industries which destroy more jobs (relative to their employment) also tend to create more jobs. Although the correlation is weak ($r=0.30$), it is statistically significant. This again implies that job destruction by itself is not a negative phenomenon. High job destruction can go hand in hand with high job creation. For example, in the wholesale trade sector the job destruction rate is high (over 9 percent), but the job creation rate is still higher (over 10 percent). The problem arises only when high job destruction is not accompanied by high job creation. Unfortunately, this is often the case in Croatia, where in majority of industries (36 out of 54) job creation falls short of job destruction.

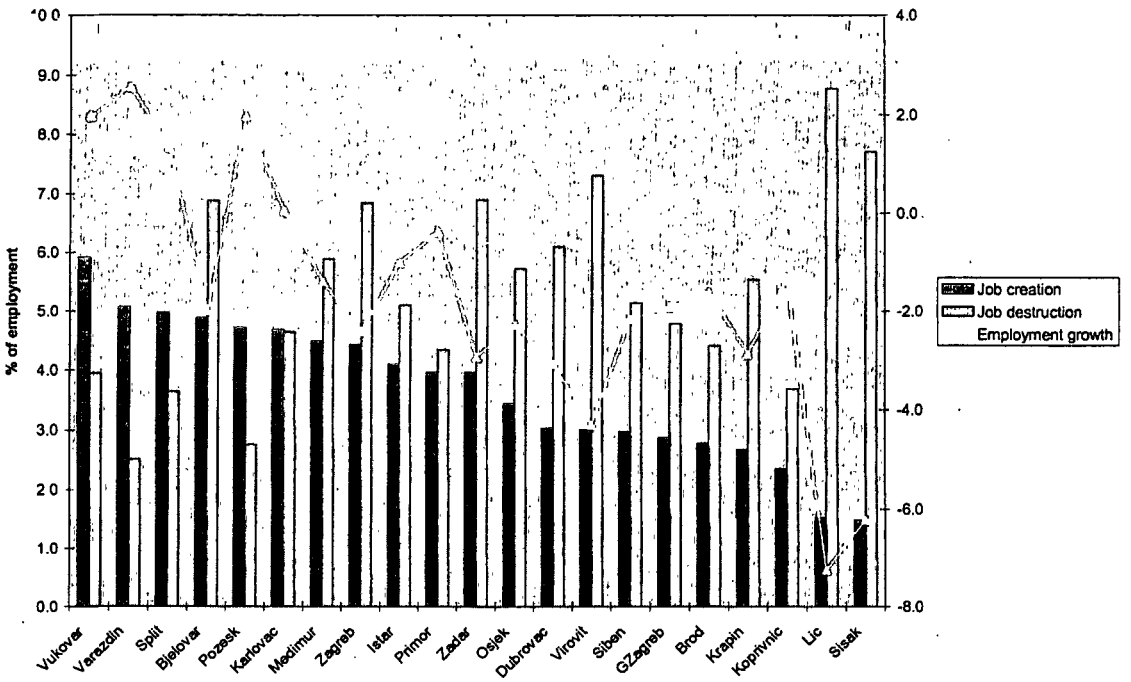
To summarize, while the overall level of job turnover is very low in Croatia, there are some industries which exhibit more dynamism and where enterprise restructuring is more advanced. However, unlike other transition economies, these restructuring industries do not grow faster than non-restructuring ones.

Presently the industry employment growth in Croatia is mainly influenced by the rate of job destruction. This is in contrast to restructuring transition economies, where employment growth is largely determined by the rate of job creation. Since the rate of job destruction is already very low in Croatia, protecting unviable jobs in the old sectors is not a sustainable strategy. Croatia's main problem is not high job destruction, but low job creation. Accordingly, the only way to increase employment is to foster job creation.

Job turnover by region

Is the Croatian labor market stagnant across the country, or there are more dynamic regions, where job flows and restructuring are more intensive? It turns out that job creation as well as job destruction rates are low throughout the country. There is no single region with a dynamic labor market and high job turnover. Although the job creation and job destruction rates do vary by region, the variability is limited, ranging from modest to very low values (Figure 2).

Figure 2 Job flows by region



In the most depressed regions virtually no new jobs are being created. For example, in the Ličko-senjska and Sisačko-moslavačka counties the job creation rate is less than 2 pecent. For comparison, in the most depressed regions of Bulgaria – another high unemployment Balcan country -- the job creation rate is over two times higher! However, even in the regions with highest job creation rates, which include Vukovarsko-srijemska and Varaždinska counties, the job creation rate is under 6 percent. Again this is humble in comparison with Bulgaria, where in the most dynamic regions the job creation rate (in continuing firms) exceeds 8 percent. Thus, job opportunities are limited across the country, but in the most depressed regions they hardly exist.

In the majority (17 out of 22) of Croatian regions job destruction rates exceed job creation rates, implying declining employment levels. However, job destruction rates are not high in absolute terms. In the most depressed regions, such as Ličko-senjska and Sisačko-moslavačka counties, the job destruction rate does not exceed 9 percent. In comparison, in Bulgaria job destruciton rates in regions most affected by restructuring approach 15 percent. In most Croatian regions the job destruciton rates vary around 4-6 percent, which is not much. This is additional evidence that the

problem faced by the Croatian economy is that of low job creation, *not* high job destruction.

Regions with low job creation tend to have high job destruction. More generally, there is a *negative* correlation between the job creation and job destruction rates across regions. This implies that regions differ little in terms of job flows, but they differ quite substantially in terms of employment growth. There are depressed regions, where job destruction is high and job creation low (Ličko-senjska and Sisačko-moslavačka counties) , and there are thriving regions (such as Vukovarsko-srijemska and Varaždinska counties) where job destruction is low and job creation is relatively high. However, in both depressed and thriving regions job turnover is at a similar level, meaning that Croatian regions do *not* differ significantly in terms of labor market dynamics, although they differ in terms of economic prosperity. This is in contrast to the pattern observed in Bulgaria, where the correlation between job creation and job destruction is *positive*, i.e. high job destruction tends to be accompanied by high job creation. The pattern prevailing in Croatia, where high job destruction is accompanied by low job creation clearly points to inadequate job creation as a main source of poor labor market outcomes.

Regional employment growth in Croatia is strongly influenced by both the pace of job creation and job destruction.[14] As there is not much scope to lower already low job destruction rates, the only way to foster regional employment growth is through encouraging faster job creation.

To summarize, regional analysis has proved that the labor market is stagnant across the country in Croatia, that there are no regions with high job turnover and large job reallocation. Our analysis has also shown that the principal problem is that of insufficient job creation, which is low across the country, not that of high job destruction. Thus the main challenge and policy imperative is to raise the pace job creation. It may involve an increase, not a decrease, in the pace of job destruction, to support reallocation of jobs from unprofitable to profitable firms.

Determinants of job creation

In the previous section we established that small private firm have a higher rate of job creation than large publicly owned enterprises. More generally, one can ask what explains job creation. What firm characteristics that are conducive for job

[14] This is in contrast to industry employment growth, which was mainly influenced by the pace of job destruction.

creation? What kind of firms increase employment? This section shows that employment tends to increase most in firms which have high labor productivity and low unit labor costs, and in firms which are capital intensive and investing.

We examine three groups of factors related to job creation. The first group consists of factors that may be associated with job creation but by itself do not influence it. An example is firm size. Small firm size does not by and of itself cause employment growth, but small firms tend to create on average more jobs than large firms.

The second group consists of factors, which influence job creation, but at the same time are themselves influenced by changes in employment. Examples include profitability, productivity or labor cost, which are likely to have an impact on employment, but simultaneously they vary with changes in employment. There is "reverse causality" here and such factors are called endogenous.

The third group comprises true determinants of job creation, that is factors that influence employment but are independent of it. Examples include access to credit, or export orientation. Firms, which have access to credit, or to foreign markets, may find it easier to expand and thus increase employment. These factors are referred to as exogenous.

The analysis of the impact of these factors on firm employment is carried out in two stages. First regression analysis is performed in order determine an independent or net impact of various firm characteristics on firm employment. By using the regression analysis one can separate the effect of a particular variable on employment from that of all other variables, which are held constant. Second, data on bivariate associations between selected firm characteristics and employment changes are presented to illustrate the most important relationships.

The results of the regression analysis are presented in Table 11.[15] Main findings of the analysis can be summarized as follows.

Productivity improvements coupled with wage moderation are key factors contributing for faster employment growth. All else being equal, higher productivity firms tend to create more jobs.[16] A ten percent higher productivity implies almost

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[15] The analysis of determinants of job creation was done using a different data set from that used to calculate the job creation and job destruction rates. See Annex ## for the dataset description.

[16] To reduce the endogeneity bias we use lagged values of independent variables. Specifically, employment change is measured from 2000 to 2001 while, the productivity level, say, relates to the year 2000.

half a percentage point faster annual employment growth. This contradicts the popular view that productivity improvements imply employment loses. To the contrary, productivity gains turn out to be beneficial for job creation. It is noteworthy that a similar result was obtained for Lithuania, proving that a positive impact of higher productivity on job creation is not country specific (Rutkowski, 2002).

It is important, however, that the gains of higher productivity are not "consumed" in the form of proportionately higher wages. This is because the beneficial employment effect of higher labor productivity realizes itself through lower unit labor costs. If unit labor costs increase – as a result of wages rising in excess of productivity – then employment decreases. According to the model, other things held constant, a 10 percent increase in unit labor costs would results in a 3.6 percent fall in the firm employment level. Firms which lower unit labor costs tend to expand, those who do not often contract. The lowering of unit labor costs – mainly through higher productivity – is thus critical for employment growth both at the firm and aggregate level.

Table 11 OLS estimation of the employment equation

Explanatory variables	Regression models			
	(1)	(2)	(3)	(4)
empl00	0.946 ***	0.939 ***	0.941 ***	0.950 ***
	223.80	*211.28*	*213.54*	*209.84*
Ownership (public)				
private	-0.016	0.003	-0.010	0.005
	0.64	*0.11*	*0.33*	*0.18*
mixed	0.035	0.040	0.036	0.037
	0.93	*1.00*	*0.90*	*0.84*
export	0.059 ***	0.036 ***	0.047 ***	0.041 ***
	5.49	*3.12*	*4.07* ***	*3.51*
credit	0.019 *	-0.019	-0.019 *	0.000
	1.66	*1.63*	*1.65*	*0*
invest	0.074 ***	0.075 ***	0.073 ***	0.072 ***
	11.88	*12.15*	*12.04*	*10.84*
ktol		0.020 ***	0.025 ***	0.035 ***
		6.17	*7.51*	*9.91*
wage		0.021 *		***
		1.69		
productive		0.043	***	
		8.59		
labcost			-0.043 ***	
			8.57	
profitab				0.008 **
				2.24
industry	no	yes	yes	yes
constant	0.114	-0.613	-0.040	-0.090
No. of obs.	8961	8822	8822	6923
R^2	0.907	0.911	0.910	0.917

Dependent variable: log of average employment in 2001
Definitions of explanatory variables:
empl00 = log of average employment in 2000
export = 1 if a firm sells its products aborad, 0 otherwise
credit = 1 if a firm has a debt towards financial institutions, 0 otherwise
capform = log of the index of fixed-capital growth over one year.
ktol = log of capital-to-labor ratio
wage = log of average monthly wage
labcost= log of labor costs as a share of sales
productiv=log productivty (sales per employee).
profitab = log of the ratio of operating profit to sales
industry = 2-digit NACE classification
All explanatory variables refer to 2000, i.e. are lagged one year.
Absolute values of the t-statistics are in italics
t-statistics were caluclated using Huber-White robust standard errors.

*** - significant at the 1 percent level, ** - significant at the 5 percent level,
* - signifcantat the 10 percent level.

Firms that are capital intensive, i.e. where the capital-to-labor ratio is high, expand employment faster than more labor intensive firms. This is not an intuitive results and therefore it is worth emphasizing. Controlling for the impact of other variables, a 10 percent increase in the capital-to-labor ratio contributes around 0.4 of a percentage point to the firm's rate of annual employment growth. Again, similar result was obtained for Lithuania, supporting the relevance of capital intensity for employment generation. It should be stressed that apart from this direct impact of capital intensity on job creation, there is an indirect impact, as higher capital-to-labor ratio usually leads to higher labor productivity, which we already know is conducive to job creation.

If capital intensity is beneficial for employment, then so should be investment, which increases the stock of capital. The model shows that this is indeed the case. Other things being constant. a ten percent increase in the investment rate (i.e. faster fixed capital formation) leads to employment growing faster by about 0.3 percentage points, which is statistically highly significant.

It should be noted, that the direction of the employment effect investment cannot be determined a priori. On the one hand, investment can entail mainly a switch toward a more capital-intensive technology with a relatively small increase in output. In such a case capital is substituted for labor with a resulting fall in employment. On the other hand, investment can entail both an increase in the capital-to-labor ratio, and an increase in output large enough to bring about an increase in employment. In the second case, capital and labor are gross complements (despite being substitutes in production) because of the scale effect (i.e., the increase in output brought about by investment) dominates the substitution effect (i.e., the fall in employment due to an increased use of capital). The regression results indicate that in Croatia the scale effect of fixed capital formation dominates the substitution effect, with a positive employment impact.

Contrary to common perception, more profitable firms do not create more jobs than less profitable ones. Although the relevant regression coefficient is positive and statistically significant, its value is very small. For example, a 10 percent increase in profitability in an average firm (employing 15 workers) would have no observable impact on the employment level. Thus firm profitability hardly has an independent impact on employment growth. If more profitable firms employ more workers, this is

due to higher productivity and lower unit costs, which boost profitability, rather than due to higher profitability by and of itself. Improving labor productivity and lowering costs is the way to increase both profits and employment. Again it is interesting to note that the same results was obtained for Lithuania.

Firm which export their products tend to create more jobs than firms which do not. This is consistent with a common view that an access to foreign markets facilitates firm expansion and employment growth. The employment effect of export orientation is substantial: all else being equal, exporting firms increase their employment by around 4 percentage points faster than non-exporting firms. For example, if an average non-exporting firm increased its employment by somewhat over 2 percent in 2001 over the previous year, an average exporting firm increased employment by over 6 percent. This suggests that an increase in Croatia's exports is likely to engender employment growth, directly as well as indirectly through productivity improvements necessary for firms to effectively compete in the global economy. As with other variables, the strong link between export growth and employment growth has also been observed in Lithuania.

Ceteris paribus, firms, which have access to credit, do not generate more jobs than firm, which do not. After all, the data indicate that firms which received credit created *less* jobs than firms which did not, although this negative effect is in some specifications is statistically insignificant. This suggests that credit does not go to firms with growth potential, but instead goes to inefficient but well connected firms. This sort of "soft lending" to a narrow group of privileged firms implies misallocation of resources and hinders rather than fosters firm expansion and employment growth.[17] Given that credit can play an important role in supporting firm expansion and job creation, the observed negative relationship between access to credit and job creation should be of concern. The issue warrants further investigation, and if necessary, a corrective policy action.

Interestingly, the effect of ownership on employment vanishes once other firm characteristics are controlled for. Other things being equal, private firms do not create

[17] In the sample (which consists predominantly of small firms), only one firm in five was using credit as a source of financing. At the same time, according to the World Business Environment Survey (2001), poor access to credit is a major constraint to firm development in Croatia. As much as 55 percent of Croatian firms considered access to credit as an important obstacle, which significantly is more than in most other countries in the region. For example, in Hungary, Poland or Slovenia only about one-third of firms cite access to credit as an important obstacle for expansion.

more jobs than public firms. However, in reality, other things are not being equal, and private firms differ in salient characteristics from public firms. These characteristics associated with private ownership cause private firms to create more jobs than public firms. Thus, although firm ownership has no independent impact, privatization still is the best way to improve firm performance, including employment growth.

Finally, all else equal, small firms tend to growth faster than larger ones. However, the faster rate of employment growth does not necessarily translate in a larger number of jobs created. To see this imagine, two firms, one employing 25 workers and the other 50 workers. Assume that the larger firm increases employment by 10 percent over one year, i.e. by 5 workers. Then our model implies that the smaller firm will increase employment by 12.8 percent, i.e. by 3.2 workers. The smaller firm will create more jobs relative to its initial employment, but less in absolute terms. But the difference in the number of jobs created is rather small. So, the net impact of firm size on employment generation should not be overstated.

Table 12 provides an additional illustration for the relationships between firm characteristics and employment performance. The positive impact of productivity on employment growth comes out very distinctly. While low productivity firms (bottom quintile) decreased employment by over 5 percent in 2001, high productivity firms (top quintile) increased it by over 11 percent. Similarly pronounced is the link between job creation and labor costs. Twenty percent of firms with the lowest unit labor cost increased their employment by 14 percent, while twenty percent of firms with the highest unit labor cost decreased employment by 3 percent.

Table 12 Changes in employment by firm category, 2000-2001

Firm characteristics (2000)	Number of firms (sample)[a]	Average employment (2000)	Change in employment, 2000-2001	
			Absolute (persons)	Relative (%)
All firms	9576	14.9	0.4	2.4
Size (employment)				
Micro (1-10)	8134	2.9	0.3	10.5
Small (11-50)	1071	21.0	0.4	2.0
Medium (51-100)	153	72.9	0.3	0.4
Large (101+)	218	389.4	1.9	0.5
Ownership				
Public	127	254.2	0.0	0.0
Private	9184	8.6	0.4	4.3
Cooperative	59	16.9	-0.8	-4.5
Mixed	206	146.9	0.3	0.2
Wage				
Very low (1st quintile)	1905	6.2	-0.1	-0.9
Low (2nd quintile)	1905	9.6	0.2	1.9
Medium (3rd quintile)	1903	9.5	0.2	2.6
High (4th quintile)	1904	13.7	0.6	4.4
Very high (5th quintile)	1904	35.7	0.8	2.3
Productivity				
Very low (1st quintile)	1891	9.5	-0.5	-5.2
Low (2nd quintile)	1890	13.6	0.0	0.0
Medium (3rd quintile)	1890	24.1	0.3	1.3
High (4th quintile)	1890	17.6	0.8	4.5
Very high (5th quintile)	1890	10.3	1.2	11.3
Unit labor costs				
Very low (1st quintile)	1881	8.3	1.2	14.0
Low (2nd quintile)	1880	8.8	0.4	5.0
Medium (3rd quintile)	1880	18.8	0.5	2.5
High (4th quintile)	1880	24.9	0.1	0.6
Very high (5th quintile)	1880	14.7	-0.4	-3.0
Capital intensity (capital-to-labor ratio)				
Very low (1st quintile)	1835	6.3	0.0	0.1
Low (2nd quintile)	1835	5.3	0.2	3.5
Medium (3rd quintile)	1835	6.2	0.3	4.9
High (4th quintile)	1835	14.1	0.5	3.6
Very high (5th quintile)	1835	45.1	0.8	1.8
Net investment (% increase in fixed assets)				
Negative or zero	5730	12.5	-0.2	-1.4
Up to 25%	1163	42.1	1.4	3.3
More than 25%	2068	9.7	1.4	14.1
Profitability (%)				
Negative or zero	2152	19.6	-0.4	-1.8
10	5824	15.3	0.6	3.9
25	1107	7.7	0.5	6.4
More than 25%	368	6.5	0.3	3.8
Access to credit				

Firm characteristics (2000)	Number of firms (sample)[a)]	Average employment (2000)	Change in employment, 2000-2001	
			Absolute (persons)	Relative (%)
Yes	1878	50.3	0.6	1.2
No	7698	6.2	0.3	4.7
Export orientation				
Exporting firms	1753	46.4	0.7	1.5
Non-exporting firms	7823	7.8	0.3	3.6

Definitions of variables:
Access to credit = liabilities to credit institutions.
Net investment = increase in the value of fixed tangible assets over one year.
Capital-to-labor ratio = value of fixed tangible assets over employment.
Productivity = sales over employment.
Unit labor costs = wages and social security contributions over sales.
Profitability = operating profit over sales

a) Active at both January and December 2001.

Source: FINA, Author's calculations.

In this context a seemingly positive association between job creation and the firm wage level may seem surprising. However, given the earlier results, the positive relationship between wages and employment growth reflects the fact that higher productivity firms are able to award their workers higher wages. This is consistent with the concept of "efficiency wages", whereby as long as higher wages lead to a more efficient use of labor they increase rather than decrease profit. This is also consistent with the theory of monopsonistic competition in labor markets, which claims that the employer offering higher wages can fill their vacancies more easily and employs more workers (Bhaskar et al., 2002). However, if wages are misaligned with productivity, which translates into high unit labor cost then firm employment is negatively affected. Thus, descriptive data strongly reinforce the earlier finding that productivity improvements coupled with wage moderation are key factors behind faster employment growth.

Investment in fixed capital evidently brings about job gains. Machines and equipment are not substituted for workers but instead enhance their productivity. Firms who do not invest often lay-off workers and close jobs. In contrast, firms which invest simultaneously create new jobs, on average 1.4 job per firm. This may seem a small number, but if aggregated across firms it translates into a much bigger

one. Clearly, measures which would facilitate investment, such as better access to credit, carry a potential to boost employment.

To conclude, main factors contributing to firm employment growth include high productivity and low unit labor costs, high capital intensity and investment, and export orientation. Access to credit does not contribute to job creation, likely because credit is directed to ineffective firms rather than firms with growth potential. To the extent this is the case, inefficient allocation of resources translates into less job creation than otherwise would be possible. These findings have straightforward policy implications. Employment growth will be fostered by policies that promote competitions and thereby force firms to improve productivity, policies which help firms to lower costs (e.g. through lower taxation), policies which improve access to credit, facilitate investment and export. In short, a key for faster job creation is better investment climate.

Stagnant labor market: job stability but no hiring

The stagnant nature of the Croatian labor market also manifests itself in limited hiring. In a low turnover labor market an unemployed person has little chances of finding a job. Data on employment tenure show another aspect of poor job opportunities in Croatia. A proportion of persons with short tenure is low, reflecting the unwillingness of employers to hire new workers. On the other hand, the proportion of workers with long job tenure is very high, reflecting the high level of employment protection in Croatia. Poor chances of finding work for the jobless coexist with high job security of those who have work. This points to labor market duality. There are *insiders* with stable jobs and *outsiders* with little chances to break into the formal labor market. Table 13 documents this division.

Table 13 Distribution of employment a) by job tenure: Croatia against selected countries; percentages

	Under 1 year	1 and under 2 years	2 and under 5 years	5 and under 10 years	10 and under 20 years	20 years or over	Average tenure (years)	Median tenure (years)
Croatia (2001)	9.7	5.1	17.2	21.3	20.7	26.0	12.2	8.0
Private sector	13.0	7.1	21.2	21.7	17.0	20.0	10.8	6.0
Public sector	4.9	2.2	11.8	21.3	26.0	33.8	14.1	12.0
Under privatization	2.1	0.5	6.6	12.4	30.9	47.5	17.3	19.0
1-49	15.3	7.8	23.7	21.9	14.5	16.7	9.2	5.4
50-199	6.7	3.1	13.8	19.9	24.5	31.9	14.3	13.3
200+	4.4	3.0	11.3	18.9	26.2	36.2	15.6	15.7
Other transition economies								
Bulgaria (2001)	14.0	9.5	25.2	20.8	19.8	10.8	8.1	5.5
Private sector	20.6	13.0	32.0	18.5	10.6	5.9	5.6	3.5
Public sector	7.3	5.7	17.6	23.2	30.0	16.2	10.8	8.5
Czech R.	19.2		36.6	12.0	14.8	17.4	9.0	2.0
Lithuania (2001)	15.4	8.9	21.6	25.4	16.8	11.9	8.3	5.0
Poland (1999)	14.5	11.7	19.0	17.7	20.3	16.7	9.6	6.2
Market economies								
Denmark	25.1	11.4	16.2	18.2	17.7	11.4	7.9	4.4
France	15.0	8.0	17.7	17.4	23.3	18.7	10.7	7.7
Germany	16.1	9.4	22.0	17.2	18.4	17.0	9.7	10.7
Spain	35.5	4.9	11.1	14.4	17.7	16.5	8.9	4.6
United Kingdom	19.6	10.7	19.5	23.5	17.3	9.4	7.8	5.0
United States	26.0	8.5	20.0	19.8	16.8	9.0	7.4	4.2

Note: data for the OECD countries refer to 1995.
a) Wage and salary workers
Sources:
Croatia: Central Bureau of Statistics, Author's calculations.
Bulgaria: LFS June 2001, Bank staff calculations.
Lithuania and Poland: Rutkowski (2002)
OECD countries - OECD Employment Outlook 1997

The proportion of workers with job tenure less than one year (which is a common indicator of labor market dynamics) is much lower in Croatia than in both transition and market economies. In Croatia new hires account for less than 10 percent of all employees. In the restructuring transition economies this proportion varies from 14 to 19 percent. But the most striking is the comparison with dynamic market economies characterized by low hiring and firing costs. In Denmark and the U.S. new hires account for some one-fourth of employment. In Spain, thanks to the liberalization of rules governing the use of fixed-term contract, new hires account for over one-third of total employment. This comparison clearly shows the extremely

low amount of hiring taking place in Croatia, and thus the stagnant nature of its labor market. This is consistent with the large share of new labor market entrants (largely youth) among the unemployed and reflects barriers to labor market entry.

These barriers are associated with the high level of protection of jobs held by insiders and the lack of job mobility. Over one-fourth of all workers in Croatia have held their jobs for 20 years or more, an extremely high proportion unparalleled in any other country. For example, in Bulgaria and Lithuania the proportion of workers with long employment tenure is 11-12 percent. In the U.K or U.S. it is less than 10 percent.

Extremely high job stability is particularly pronounced in large public (as well as privatized) enterprises in Croatia. For example, large firms have less than 5 percent of workers with short job tenure (less than 12 months) and as much as 36 percent of workers with long job tenure (20 years or more). Hiring is more frequent and job mobility larger in small private firms, however even in this "new sector" hiring is much lower than in dynamic market economies. Apparently the new sector in Croatia is not exempt from constraints to job creation and hiring.

To conclude, hiring is extremely limited in Croatia. Low hiring is a mirror image of low firing and considerable job stability enjoyed by the insiders. The high level of protection of the interests of those who have jobs substantially rises implicit labor costs and, consequently, makes employers reluctant to hire new workers. Those who pay the price are the outsiders: new entrants to the labor market (mainly youth) and job losers.

III. Why is the Labor Market Stagnant?

Why the job creation rate is low an hiring is limited in Croatia? In the previous section strict employment protection regulations was identified as a likely cause of the lack of job mobility and labor market stagnation. This section examines more closely employment protection legislation in Croatia and its impact on labor market dynamics. Furthermore, it analyzes other potential constraints to job creation, such as labor costs, wage flexibility, and skill mismatch.

Stringent employment protection legislation

Employment protection regulation in Croatia is among the strictest in Europe.[18] Laying-off redundant workers is difficult and costly due to both high procedural and monetary costs of dismissals. This highly rigid nature of the Croatian labor market is reflected in a high value of a composite index of the strictness of employment protection legislation (EPL) developed by OECD.[19] Table 14 documents that employment protection legislation is stricter in Croatia than in any transition economy accessing EU (which tend to have relatively rigid labor market), and in fact stricter than in virtually all EU and OECD economies. It is noteworthy that EPL in Croatia is much stricter than in countries characterized by low unemployment flexible labor markets, such as Hungary among the transition economies, and Denmark, Ireland, the Netherlands, and the U.K. among the mature market economies. For illustration, the summary EPL index amounts to 1.1 in Ireland or to 1.7 in Hungary, compared with 3.6 in Croatia. This indicates a truly dramatic difference in terms of constraints facing employers who need to adjust the size and composition of their workforce. Hence, strict employment protection, such as in Croatia, does not prevent high unemployment (resulting from the cumulative growth of the number of persons who cannot enter the labor market). Conversely liberal employment protection does not necessarily lead to high unemployment, to the contrary it tends to be associated with better labor market outcomes (anglo-saxon countries – U.S. and U.K. – provide the best example of relatively low level of employment protection associated with low unemployment).

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[18] Labor laws and regulations in Croatia are discussed in more detail in Fuenzalida (2002).

[19] The index is a weighted average of 22 indicators of the strictness of employment protection legislation in three areas: (1) regular contracts (with the weight of 5/12, (2) temporary contracts (5/12), and (3) collective dismissals (2/12). Regular contract are divided into (a) procedural inconveniences (1/3), (b) notice and severance pay (1/3), and (c) difficulty of dismissal (1/3). Temporary contracts include (a) fixed term contracts (1/2) and (b) temporary work agency employment (1/2). The index for collective dismissals is directly computed by averaging four indicators relating to special requirements and costs associated with collective dismissals. The higher the value of the summary index, the stricter the employment protection legislation. The methodology of calculation of the index is described in OECD (1999).

Table 14 Employment Protection Legislation Strictness for Croatia and Central and East European EU accession countries (CEEEUAC)

Country	EPL strictness			
	Regular employment	Temporary employment	Collective dismissals	Summary index
Croatia	2.8	3.9	5.0	3.6
Czech Republic	2.8	0.5	4.3	2.1
Estonia	3.1	1.4	4.1	2.6
Hungary	2.1	0.6	3.4	1.7
Poland	2.2	1.0	3.9	2.0
Slovak Republic	2.6	1.4	4.4	2.4
Slovenia	3.4	2.4	4.8	3.5
CEEEUAC average	2.7	1.2	4.1	2.4
EU average	2.4	2.1	3.2	2.4
OECD average	2.0	1.7	2.9	2.0
CEEEUAC minimum	2.1	0.5	3.4	1.7
EU minimum	0.8	0.3	2.1	0.9
OECD minimum	0.2	0.3	0.4	0.7

Sources: OECD (1999), World Bank estimates for Estonia and Slovenia, Biondić et al. (2002) for Croatia.

The overall high level of EPL in Croatia reflect regulatory constraints in three basic areas: high procedural and monetary costs associated with individual dismissals, restrictions on temporary employment, and finally high costs of collective dismissals. In all three cases regulations in Croatia are more stringent than in vast majority of transition economies, EU and OECD. However, collective dismissals are by far the most difficult and costly in Croatia across the whole OECD. The pertinent index reaches the maximum value of 5 in Croatia, compared with 3.4 in Hungary and 2.1 in Ireland. This means that the costs of collective dismissals – which can mean as few as five workers – can in man cases be prohibitive in Croatia. Below we present the most important legal provisions contributing to high dismissal costs in Croatia.

Individual dismissals are costly due to the long advanced notice period and high severance pay. In addition, expected costs are increased by high probability of job readmission and generous monetary compensation ordered by courts. Specifically, advanced notice of dismissal for workers with 20 or more years of service is 6 months in Croatia, compared with 3 months in Hungary or Poland and 2

months in Ireland or Slovakia.[20] Severance pay is determined as two weeks of salary per year of service, with no upper limit, which is very generous. For example, a Croatian worker with 20 years of service would be entitled to 10 monthly salaries in severance pay, while his/her Slovak, Irish and Hungarian colleagues would get 2, 2.2 and 5 monthly salaries, respectively. Imagine now that a Croatian workers is fired for, say, poor performance. As proving poor performance is difficult, courts – which traditionally have exhibited a pro labor bias – tend to order job readmission and compensation amounting to forgone earnings (with no upper limit). Given lengthy court procedures, expected hiring costs are high, effectively discouraging employers from laying worker off.

Temporary (fixed-term) employment is way of circumventing high costs of terminating regular employment contracts. However, the law in Croatia restricts its use by requiring that temporary contracts are signed only on exceptional basis when there is a valid and important reason.[21] Furthermore, the total cumulative duration of temporary employment cannot exceed three years. While many countries impose some restrictions on the use of temporary employment contracts, in Croatia they are more strict than in other countries. For example, in Hungary or Estonia the total duration of temporary contracts can be five years. Accordingly, the incidence of temporary contracts – 11 percent -- is relatively low in Croatia. For comparison, in Spain, where temporary contracts were introduced specifically to improve flexibility and increase hiring, they account for about one-third of all contracts (Dolado et al., 2002). However, despite the restrictions, temporary contracts seem to be increasingly used by Croatian employers. After all, there is a perception that they are being abused, because reportedly the majority of new hires are offered fixed-term contracts. Using the recent Labor Force Survey (2001) data we estimate the incidence of temporary employment contracts among new hires at 55 percent. The proportion of newly concluded fixed-term contracts is high, indicting weak enforcement of the relevant provision of the Labor Law. The growing popularity of fixed term contracts among employers reflects high dismissal costs in the case of permanent employment contracts, and is a source of necessary employment flexibility for employers. As

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[20] As documented earlier in the paper, the proportion of workers with long job tenure, for whom dismissal costs are substantially higher, is very high in Croatia compared with other countries.

[21] Valid reasons include seasonal work, replacement of a temporary absent employee, special business needs, etc.

such, fixed term contracts contribute to greater hiring and play a positive function. The only efficient way to increase the use of permanent contracts by employers is to significantly lower the firing costs associated with them.

If individual dismissals are difficult, *collective dismissals* are even more so in Croatia. Accordingly lay-offs for economic or technological reasons are very costly. One source of the problem is an overly inclusive definition of collective redundancy in Croatia whereby special regulations apply from 5 dismissals over the period of 6 months upward. This is a much broader definition that in the EU, where collective redundancy is defined as either 10 or more workers laid off over the period of 1 month, or 20 or more workers laid off over the period of 3 months.[22]

Another source of the high costs of collective dismissals are strict procedural requirements. They include consultation with trade unions on alternatives to redundancy, notification of local Employment Office and an obligation to prepare a Social Plan, to mitigate the effects of redundancy. These procedural requirements involve an additional delay of 90 days before a notice of dismissal can be issued. This is much longer than in other countries where the additional delay usually is four to six weeks. Altogether, collective dismissal in Croatia involve lengthy and cumbersome procedures, which translate into direct financial costs of compensating redundant labor.

What are the implications of stringent employment protection regulations and high firing costs in for labor market performance in Croatia? Basically, they contribute to and account for the observed unfavorable labor market outcomes, such as low job creation and hiring, long duration of unemployment spells, and the concentration of unemployment among disadvantaged worker groups.[23]

The mechanics of the impact of strict EPL on labor market outcomes are as follows. All but prohibitive dismissal costs in Croatia explain the observed low firing and job destruction rates. At the same time, they contribute to low hiring and job creation rates. This effect works through two channels. First, stringent labor market

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[22] European Council Directive 98/59/EC. See Fuenzalida 2002 for the comparison of employment protection in Croatia with EU norms.

[23] It has been extensively documented that the costs of labor market rigidities and poor labor market performance are disproportionately borne by vulnerable worker groups, such as youth, women and older individuals. See Bertola et al. (2002) for most recent research on the relationship between labor market institutions and demographic employment patterns.

regulations discourage firm entry (Scarpetta, 2002). Second, high firing costs discourage hiring as employers limit staff recruitment in order to avoid future costs of employment adjustment to changes in product demand (OECD 1994). Accordingly, limited hiring is a mirror image of limited firing. By hindering both job destruction and job creation strict EPL limits job turnover. As a result, both employment and unemployment spells tend to be longer. The chances to escape unemployment, are thus less than in a dynamic, high turnover labor market. This, coupled with the discouraged worker effect, leads to lower employment-to-population ratio, especially among disadvantaged worker groups, such as youth, women and older workers, and thus to the underutilization of labor resources (OECD 1999).

Moreover, by inhibiting job turnover and raising the costs of enterprise restructuring, strict EPL in Croatia hinders productivity improvements and thereby lowers the rate of economic growth. Finally, strict EPL provides an incentive to firms to move to or remain in the informal sector in order to lower explicit and implicit labor costs (Schneider and Enste, 2000).

Economic costs of overly strict EPL in Croatia are thus enormous. Ultimately they boil down to lower employment and slower economic growth and thereby to lower welfare of the population. This is not a price worth paying for high job security of insiders, i.e. those workers who have protected jobs in the formal sector.

High labor costs

Wages are high in Croatia, higher than virtually all other transition economies of Central and Eastern Europe (Table 15). An average manufacturing worker receives close to USD 500 in Croatia, which is from 50 to 100 percent higher than in Croatia's closest competitors such as the Czech Republic (USD 340), Hungary (USD 310) or Slovakia (USD 260) and almost five times as much as in Bulgaria or Romania (USD 110).

Table 15 Gross monthly wages in manufacturing, 2000

	Gross wages	Labor compensation a)	GNI per capita	Gross wages	GNI per capita
		$		Croatia = 100	
Bulgaria	109		1520	22	33
Croatia	494	577.9	4620	100	100
Czech Republic	341	503.5	5250	69	114
Estonia	281	373.3	3580	57	77
Greece	1432	..	11960	290	259
Hungary	312	449.7	4710	63	102
Ireland	1804	..	22660	365	490
Latvia	225	..	2920	46	63
Lithuania	247	..	2930	50	63
Poland	457	605.3	4190	92	91
Portugal	679	..	11120	138	241
Romania	112	..	1670	23	36
Slovakia	255	382.2	3700	52	80
Slovenia	793	1093.9	10050	160	218
Spain	1461	..	15080	296	326

.. = Not available
a) Gross wage plus payroll taxes.

Sources:
Wages: Yearbook of Labor Statistics 2001, ILO
Gross National Income: World Bank Atlas, 2002
Exchange rate: World Development Indicators, The World Bank, 2002.

Do these wage differentials reflect productivity differentials? The answer is no. Relatively high wages in Croatia are not justified by proportionately higher labor productivity. Using GNI per capita as a proxy for labor productivity, it turns out that wage differentials between Croatia and other transition economies are larger than productivity differentials.[24] Croatia does not enjoy a productivity advantage which would warrant the existing level of wages. In other words, productivity adjusted wages are high in Croatia compared with other countries. For example, manufacturing wages in Slovenia are about 60 percent higher than Croatia, however productivity is over twice as high, which implies that despite higher wages, unit labor

[24] Clearly, GNI per capita is a very rough proxy for manufacturing productivity (output per worker), and accordingly the results presented are gross approximation. Nonetheless, given cross-country correlation between GNI per capita and productivity, the scope for large errors regarding the ranking of countries with respect unit labor costs seems limited.

costs are lower in Slovenia. Similarly, while labor productivity in Hungary is at a similar level as in Croatia, Hungarian wages are on average by one-third lower.

Labor costs comprise not only gross worker wage but also payroll taxes paid by the employer. The payroll tax rate, at around 17 percent, is lower in Croatia than in other transition economies of CEE and in fact lower than in most EU countries. By way of comparison, the payroll tax rate in EU accession countries ranges from 33 percent in Estonia to 50 percent in the Slovak Republic. The average payroll tax rate in the EU is 23.5 percent (Ribaud et al., 2002). The low payroll tax rate in Croatia is a positive factor, as high payroll taxes negatively affect labor demand. Nonetheless, the relatively low payroll tax rate in Croatia does *not* offset the relatively high gross wages. Labor costs in Croatia are still higher than in most of its East European competitors. For example, labor costs in Croatia's manufacturing are about 15 percent higher than in the Czech Republic, 30 percent higher than in Hungary and 50 percent higher than in Slovakia.

As a digression, it should be noted that he sole focus on payroll taxes is misguided as contributions can be shifted from employers to employees without affecting the level of labor costs. That is exactly the case in Croatia: while social security contributions paid by paid by employers are relatively low, those paid by employees are relatively high, accounting for the high gross wages. What matters is thus the total tax wedge – the wedge between labor costs to the employer and the corresponding net take-home pay of the employee. Currently the tax wedge accounts for 41.1% of total labor costs in Croatia (Table 16), which is still relatively low both by standards of EU and other transition economies of CEE. For example, in CEE the tax wedge ranged (in 2000) from 44.4 percent in the Slovak Republic to 45.3 percent in Poland, to 56.3 percent in Hungary (OECD 2001). In the EU the tax wedge ranges from 39.4 percent in the U.K. to 67 percent in Belgium, with the average (unweighted) at 52.7 percent.[25] It should be stressed that the relatively low tax wedge is a results of a conscientious effort of the government of Croatia, who recognizing the importance of low labor costs for Croatia's competitiveness and employment, reduced the tax wedge by a considerable 7 percentage points in the second half of he 1990s.

[25] The tax wedge is calculated for a single individual at the income level of the average production worker.

Table 16 The structure of labor costs
(gross wage = 100)

	Labor cost components	1995	2000	2002
1	Employee gross wage	100	100	100
2	Employer contributions (payroll taxes) [a)]	21.78	16.98	17.92
2.1	health insurance	7	7	7
2.2	professional disease	0	0	0.47
2.3	pension insurance	12.75	8.75	8.75
2.4	unemployment insurance	0.85	0.85	1.7
2.5	water contribution	0.8	0	0
2.6	chamber of commerce contribution	0.38	0.38	0
3	Employee taxes and contributions [a)]	37.00	31.69	30.55
3.1	health insurance	7.0	9.0	9.0
3.2	pension insurance	12.75	10.75	10.75
3.3	child allowance contribution	2.2	0	0
3.4	unemployment insurance	0.85	0.85	0
3.5	personal income tax (effective)	14.2	11.1	10.8
4	Net (take-home) wage (1) - (3)	63.00	68.31	69.45
5	Labor costs (1) + (2)	121.78	116.98	117.92
6	Tax wedge b) [(5)-(4)]/(5)*100	48.27	41.60	41.10

a) as a percentage of employee gross wage
b) as a percentage of labor cost

Source: Ministry of Finance; Bank staff calculations.

All in all, *unit* labor costs in Croatia are high, higher than in Croatia's main competitors.[26] This has an important negative effect on labor demand. First, there is a direct effect whereby higher labor costs imply lower labor demand. Second, there is an indirect effect whereby higher unit labor costs implies lower profit margin which discourages investment by lowering resources available for investment and expected returns on investment. Lower investment, in turn translates into less jobs creation and lower employment.

Why are labor costs high in Croatia? Given that the tax wedge is moderate, it is workers net pay that is the primary reason of high unit labor costs. One possible factor behind relatively high wages is wage pressure exerted by insiders, that is workers with secure jobs who therefore have a strong bargaining position. In addition, the industry level bargaining, which prevails in Croatia, especially in large

[26] Unit labor costs in Croatia is even higher if one uses the hourly wage rate instead of average wage per worker. This is due to the relatively short working hours in Croatia (effectively 37.5 hours per week), which is less than in most other countries in the region, where the working hours are 40 per week.

firms, and which is known to generate wage pressure, has likely contributed to increase in labor costs (Calmfors and Driffil, 1988).[27] Strong real wage growth, unparalleled in other transition economies, which has occurred in Croatia since mid 1990s, is consistent with both hypothesis. If so, then high unit labor costs in Croatia result from the interaction between the strict EPL (which gives rise to insiders' bargaining power) and wage bargaining institutions, specifically the predominance of industry level bargaining.

To summarize, unit labor costs are high in Croatia, higher than in most of its close competitors, reflecting wages not aligned with productivity. This has a negative impact on hiring and employment level. In addition to limiting current labor demand, high unit labor costs also discourage investment, thus limiting future employment. The likely cause of high labor costs in Croatia are strong bargaining position of insiders, stemming from strict employment protection, coupled with industry level bargaining, which generates wage pressures. Given that the tax wedge is relatively low, the only way to lower unit labor costs (without lowering real wages) is through productivity improvements, which necessitate intensive enterprise restructuring. It is essential to reform wage bargaining institutions so that these gains are not fully consumed by the wage growth.

Compressed wage structure

The wage structure is more compressed in Croatia than in most other transition economies. The Gini coefficient – a summary measure of income inequality – amounts to 0.274 in Croatia, while in other transition economies of Central Europe it is around 0.300 or higher (Rutkowski 2001). Earnings dispersion is thus rather modest in Croatia. However, at closer inspection it turns out that the earnings structure in Croatia exhibits some peculiar features. The wage distribution is compressed at the upper tail, while having a relatively long and heavy lower tail. This is in contrast to other transition economies, where wage distribution has widened mainly at the upper end, meaning that in the course of transition high earnings have become more prevalent. In Croatia still the incidence of high pay seems to be limited.

[27] The structure of wage bargaining and its impact on wage pressure is a complex issue which requires further investigation. Here we just point to a potential source of wage pressures observed in Croatia.

At the same time the incidence of low pay is quite high, comparable to that in higher inequality transition economies, such as Hungary.[28]

Specifically, the bottom decile worker earns 54 percent of the median earnings which indicates a fair amount of wage flexibility at the lower end of the earnings distribution (Table 17). For comparison, in Slovenia the bottom decile worker earns some 60 percent of the median, which is characteristic of a more egalitarian wage structure. Simultaneously, over 20 percent of all wage and salary earners in Croatia earn less than two-thirds of the median, which means that the incidence of low pay is quite high.[29] For instance in the EU countries, where wage inequality tends to be limited, the incidence of low pay rarely exceeds 15 percent.

Table 17 Summary of earnings [a] distribution, 2001

	Mean	Bottom decile	Median	Top decile	P10	P90	Decile ratio	Gini coeff.
	Kuna				%			
All workers (CBS)	3397	1626	3008	5270	54.0	175.2	3.2	0.274
All workers (FINA) b)	3448	1850	3454	4943	53.6	143.1	2.7	0.206
Sector								
Public sector	3838	2824	3886	4661	72.7	119.9	1.7	0.117
Private sector	3124	1685	2805	5103	60.1	182.0	3.0	0.240

Note:
P10 denotes the earnings of the bottom decile relative to the median, expressed as a percentage.
The decile ratio is the ratio of the top decile to the bottom decile, i.e. P90/P10.

a) Gross earnings.
b) Legal persons only; February 2002

Source: FINA and
Struktura zaposlenih prema visni prosjecne isplacene neto place i po djelatnostima u ozujku 2001, CBS.
Author's calculations.

At the other extreme, the top decile worker earns 75 percent more than the median worker. This represents a lower premium for high skills than in most other

[28] In this sub-section the terms high and low pay have a *relative* rather than *absolute* meaning, i.e. refer to wage inequality rather than the level. This is in contrast to the preceding sub-section, where the focus was on the absolute level of wages. To illustrate the difference between these two concepts (of absolute and relative wages), the wages are high in Croatia relative to other transition economies; at the same time there is a relatively large number of workers who are low paid compared with the median worker, and a relatively small number of workers who are highly paid compared with the median worker.

[29] This figure can be inflated, however, by employers underreporting wages in order to lower the payment of social security contributions.

transition economies, where top decile workers usually earn at least twice as much as the median worker. Simultaneously, the incidence of high pay is limited. Only 17 percent of workers earn more than 1.5 times the median in Croatia, compared with over 20 percent in countries such as Hungary, Poland or Slovenia. This is not a dramatic difference, nonetheless it is significant and indicative of some rigidities in the wage setting process in Croatia (see below). Highly paid jobs are still to come in Croatia.

As in all other transition economies, wage inequalities are much higher in the private than in the public sector. For example, the decile ratio – the ratio of top decile to bottom decile earnings – is less than two in the public sector and about three in the private sector, which points to substantially different wage setting practices in both sectors. [30] In the public sector wages are still set in a very egalitarian way, which is not the case in the private sector, where wages better reflect productivity differentials among workers.

It seems that the primary source of the limited wage dispersion in Croatia is the still large employment share of publicly owned and privatized firms and the relatively low share of *de novo* private firms. In the public sector wages of different categories of workers are determined according to a standard wage grid, i.e. a system of coefficients meant to reflect skill requirements associated with different jobs. The least skilled jobs are assigned the coefficient of one while the most skilled jobs are assigned the coefficient in the five to six range, depending on the firm or industry level collective agreement. Such a system of wage determination, supported by trade unions, is an obvious source of wage compression, as it produces both the wage floor and the ceiling.

The wage ceiling is determined according to a perception of a fair degree of wage dispersion. As to the wage floor, this role is usually played by the minimum wage. However, there is no statutory minimum wage in Croatia. Instead this role is played by the minimum base for social security contribution (which presently accounts for about 50 percent of the average wage). This notional minimum wage is as a rule used in collective agreements as the floor for the wage structure, although in

[30] The data on the pubic/private sector wage structure come from a different source than data on overall wage distribution and are not comparable.

some industries, where trade unions bargaining position is stronger, this floor is set at a somewhat higher level.

What are the ramifications of the existing wage structure? The relatively high incidence of low-paid jobs implies two things. First, it contributes to income inequalities. On the other hand, however, it provides employment opportunities for low skilled and inexperienced workers. To the extent this is the case, wage inequality alleviates inequality that is more socially harmful, namely that in access to work. Thus, given the high level of unemployment in Croatia, wage flexibility at the lower end of the distribution should be viewed as a positive factor, on balance enhancing social welfare.

Second, the relatively low incidence of top paying jobs may imply relatively low premium for high and specialized skills and may thus discourage investment in such skills. A question which requires further investigation is whether there is a sufficient supply of high skills in Croatia and whether firms are able to recruit and retain highly skilled workers. This problem is most probably concentrated in public and privatized firms.

To summarize, the wage structure in Croatia is somewhat more compressed than in other transition economies. This reflects a still relatively large share of the public sector, where wage setting is more egalitarian, mainly due to the active involvement of trade unions. Unlike other transition economies, the wage structure in Croatia is decompressed at the lower tail of the distribution and compressed at the upper tail. The decompressed lower end of the wage distribution is likely to reflect the lack of statutory minimum wage, whereas the compressed upper end is likely to reflect trade unions' perception of fair wage differentials.

Wage flexibility at the lower end of the distribution translates into a relatively high incidence of low-paid jobs. While this contributes to income inequalities, it also provides job opportunities for low productivity workers and thus alleviates the unemployment problem. The compressed earnings distribution at the upper end may limit the supply of highly specialized and rare skills. This is an empirical question which merits further investigation.

All in all, the wage structure does not seem to be a factor contributing to poor labor market performance in Croatia.

Skill and spatial mismatches?

Unemployment in transition economies is often of frictional and structural nature, reflecting accelerated restructuring and spatial and skill mismatches occurring in its course. These mismatches emerge because new jobs that are being created differ in salient characteristics – such as the skill content and location – from the old jobs that are being eliminated. Accordingly, a faster pace of enterprise restructuring can be expected to lead to more pronounced labor market mismatches and hence higher unemployment.

Given the slow pace of enterprise restructuring in Croatia and thus limited inflows into unemployment one can conjecture that frictional unemployment does *not* play a significant role. In order to gauge the extent of structural unemployment one needs to compare the skill and location structure of available jobs (vacancies) with the structure of unemployment. For example, the more the skills required by employers differ from the skills possessed by the unemployed, the larger is structural unemployment. Unfortunately, there is no good measure of the skill content. As a rough proxy one can use educational attainment, however in this case important aspects – such as occupational, computer, communication, language, or managerial skills – are left out from the analysis.

With this caveat in mind, it is interesting to notice that the educational structure of existing jobs does not differ significantly from the structure of unemployment in Croatia (Table 18). This is in contrast to most transition economies, where there is a visible discrepancy between those two structures: the proportion of low skilled jobs is much lower than the proportion of low skilled unemployed. Accordingly, an index of skill mismatch is lower in Croatia than in other transition economies. As noted, this is a far from perfect measure of the extent of the skill mismatch, but nonetheless it suggests that inadequate formal educational attainment of the unemployed is *not* a primary cause of unemployment in Croatia. This positive finding notwithstanding, it is likely that some of the unemployed, especially the long-term unemployed whose skills tend to erode, lack important skills sought after by the employers, which limits their chances to find a job.

Table 18 The structure of employment and unemployment by educational attainment, 2001

Education	Share in employment	Share in unemployment	"Excess supply"
	%		
Less than primary	5.6	3.3	-2.3
Primary	17.6	15.8	-1.8
Vocational school a)	22.4	30.2	7.8
Secondary technical b)	32.9	35.5	2.6
Secondary general	3.5	4.9	1.4
College	6.5	4	-2.5
University	11.5	6.3	-5.2

a) 1 to 3 year courses
b) 4 year courses

Source: Labor Force Survey, CBS; Author's calculations.

As to the spatial mismatch, it is difficult to assess it degree due to the lack of relevant data.[31] Other studies documented relatively strong regional variation of unemployment in Croatia, which may point to regional mismatches (Bisogno 2000). Still, given relatively little variation in the job creation and job destruction rates by region, these regional differences in labor market conditions are more likely to be of a historic nature rather than recent developments resulting from the differential rate of enterprise restructuring during the transition.

We can tentatively conclude that educational and spatial mismatches arising from industrial restructuring are not major factors behind high unemployment in Croatia. Indirect evidence supporting this claim comes from slow pace of job reallocation in Croatia. As few jobs are being destroyed and created, there is not much scope for mismatch between the old and new jobs. A more direct evidence comes from the comparison of the educational structure of employment and unemployment. Both are similar and there is no – common in other countries – disproportion between the fractions of low skilled jobs and low skilled unemployed. Nonetheless, there are reasons to believe that long term unemployment – which is substantial in Croatia – is associated with inadequate skills.

[31] The Central Bureau of Statistics does not publish data on unemployment by region.

IV. Conclusions and Recommendations: Barriers to Job Creation and How to Remove Them

This paper shows that a slow pace of job creation is at the root of poor labor market performance in Croatia. This slow pace of job creation is caused by (a) barriers to entry by new firms, and (b) barriers to expansion by existing firms. The paper focuses on the latter issue and finds that the strict employment protection legislation in Croatia is a key constraint on job creation and hiring. In addition, and not independently, job creation is slowed down by high unit labor costs. These high unit labor costs are a result of the wage pressure exerted by *insiders*, that is workers with protected and secure jobs employed in a still large old sector, consisting of large state owned or privatized enterprises. In addition the paper examines other possible causes of slow job creation and high unemployment, such as the unemployment benefit system, the wage structure, enterprise restructuring and associated skill and spatial mismatches. These factors seem to play a negligible or a secondary role. Thus, reforms of the employment protection legislation and the wage bargaining system are key for improving labor market performance in Croatia.

The overarching objective of such reforms is to enhance labor market flexibility through *deregulation* and *decentralization* of industrial relations in Croatia. The following specific measures should help to achieve this objective.[32]

- Lowering barriers to entry by small private firms and improving business environment for SMEs;
- Liberalizing the employment protection legislation through amending the Labor Code. Specifically:
    - Lowering costs of individual dismissals by shortening the notice period and lowering the statutory severance pay ;
    - Relaxing restrictions on the use of fixed-term and temporary contracts;
    - Revising the definition of collective dismissals so that it applies to at least 20 workers (released within 90 days), and exempting

[32] The reforms recommended here are consistent with those agreed upon between the Government of Croatia and the World Bank under the Structural Adjustment Loan (SAL).

small employers from special provisions regarding group lay-offs;

- Decentralizing industrial relations, in particular moving away from industry level bargaining toward firm level bargaining.

In addition, aggressively applying job availability and search tests would help to discriminate between those unemployed who are registered in order to find a job and those who are registered to have access to benefits. This in turn would allow the relevant agencies to have a clearer picture of actual unemployment and its changes.

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ANNEX 1

Description of the Survey of Employment and Wages (RAD-1)

The Central Bureau of Statistics (CBS) carries out a monthly survey of employment and wages referred to as RAD-1. This survey was a primary source for the analysis of job creation and job destruction. To track changes in employment (job gains/loses) matched records for January 2000 and January 2001 were used. The main characteristics of the survey are as follows.

Sample design and firm coverage

The survey uses a targeted sample of establishments, constructed so as to cover 70 percent of employment within a 2-digit NACE industrial activity. Due to the sample design, small firms are underrepresented in the sample. Data is grouped by industrial activity rather than by firm. This means that if a firm carries out two, say, different NACE activities it is treated as two different establishments. The sample was drawn from the Register of Business Entities and from the database administered by the Office for Payment Transactions (FINA). All surveyed firms are *legal persons*, i.e. firms which are natural persons are not included. The matched 2000-2001 sample includes only *continuing firms* only, i.e. does not include firms which did not report employment either in 2000 or in 2001. Accordingly, there is no information in the sample on firm entry and exit. The matched 2000 and 2001 sample comprised of 6316 firms.

Worker coverage

All employees within the establishment, regardless of their employment status (including part-time workers, temporary workers, etc.).

Definition of employment

Employment = total employment in the establishment as of January.

Data cleaning

In a few cases matched employment records showed implausibly large increases or decreases in firm employment over a year. Such large employment changes are likely to reflect either mergers, or splits, or can be spurious, i.e., reflect errors in data entry. Given that such outliers have a large weight and bias the data on job creation and destruction, they were removed from the data set. An observation was treated as an outlier if the employment change was large in both absolute and relative terms. A large absolute change was defined as that exceeding three standard deviations. A large relative change was defined as one exceeding 33% increase/decrease in the employment level over a year. As a result of applying the cleaning procedure 33 observations were removed from the data set.

Basic statistics referring to the original data set and the cleaned data set (used for analysis) are shown in Table A1

Table A1 Sample structure by size, ownership and sector

Firm category	Number of firms	
		%
A. Original data set		
All firms	6316	100
Size		
-5	592	9.4
6 –10	575	9.1
11 – 50	2569	40.7
51 - 250	2103	33.3
251+	477	7.55
Ownership		
Public - institutions	2226	35.2
Public - firms	1042	16.5
Private	1911	30.3
Mixed	1137	18
Sector		
Agriculture	270	4.3
Business	3755	59.5
Non-business	2291	36.27
B. Cleaned data set		
All firms	6283	100
Size		
-5	592	9.4
6 –10	575	9.2
11 – 50	2568	40.9
51 - 250	2099	33.4
251+	449	7.2
Ownership		
Public - institutions	2225	35.4
Public - firms	1037	16.5
Private	1898	30.2
Mixed	1123	17.9
Sector		
Agriculture	270	4.3
Business	3723	59.26
Non-business	2290	36.45

Source: Central Bureau of Statistics; Author's calculations.

ANNEX 2

Description of the FINA Enterprise Survey

The Financial Agency (known as FINA) carries out a yearly survey of all registered enterprises (there are about 59 thousand active enterprises as of 2001). In principle, reporting is obligatory. The survey collects data on firm financial indicators and on employment. For some variables (e.g. fixed assets, employment) data is collected for both the current and the previous period. For the purpose of the analysis of determinants of employment a random sample of 12 thousand firms was drawn, constructed so as to ensure proportional representation of firms by ownership and region. Data refer to 2001. The main characteristics of the survey are as follows.

Firm coverage

The survey is a census of all firms registered at the Register of Business Entities. (The register does not cover the financial intermediation sector, i.e. banks, insurance and other financial institutions).

Worker coverage

All employees within the firm, regardless of their employment status (including part-time workers, temporary workers, etc.). Also self-employed workers registered as profit oriented units.

Definition of employment

Employment = average firm employment during the year.

Data cleaning

In order to remove implausible observations the same data cleaning procedure was applied as the one described in Annex 1. As a result of applying the cleaning procedure 44 observations were removed from the data set. In addition, for 2380 firms employment data for either 2000 or 2001 were missing and these observations were thus dropped.

Basic statistics referring to the original data set and the cleaned data set (used for analysis) are shown in Table A2.

Table A2 Sample structure by size, ownership and sector, 2001

Firm category	Number of firms	
		%
A. Original data set	12000	100.0
All firms		
Size		
Missing	1612	13.4
1	3221	26.8
2 – 5	4258	35.5
6 –10	1263	10.5
11 – 50	1217	10.1
51 – 250	340	2.8
251+	89	0.7
Ownership		
Public	144	1.2
Private	11532	96.1
Cooperative	72	0.6
Mixed	252	2.1
Sector		
Agriculture	296	2.5
Business	11234	93.6
Non-business	470	3.9
B. Cleaned data set		
All firms	9576	100.0
Size		
1	2884	29.7
2 – 5	3966	41.4
6 –10	1209	12.6
11 – 50	1171	12.2
51 – 250	304	3.2
251+	82	0.9
Ownership		
Public	127	1.3
Private	9184	95.9
Cooperative	59	0.6
Mixed	206	2.2
Sector		
Agriculture	233	2.4
Business	8980	93.8
Non-business	363	3.8

Source: FINA; Author's calculations.

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